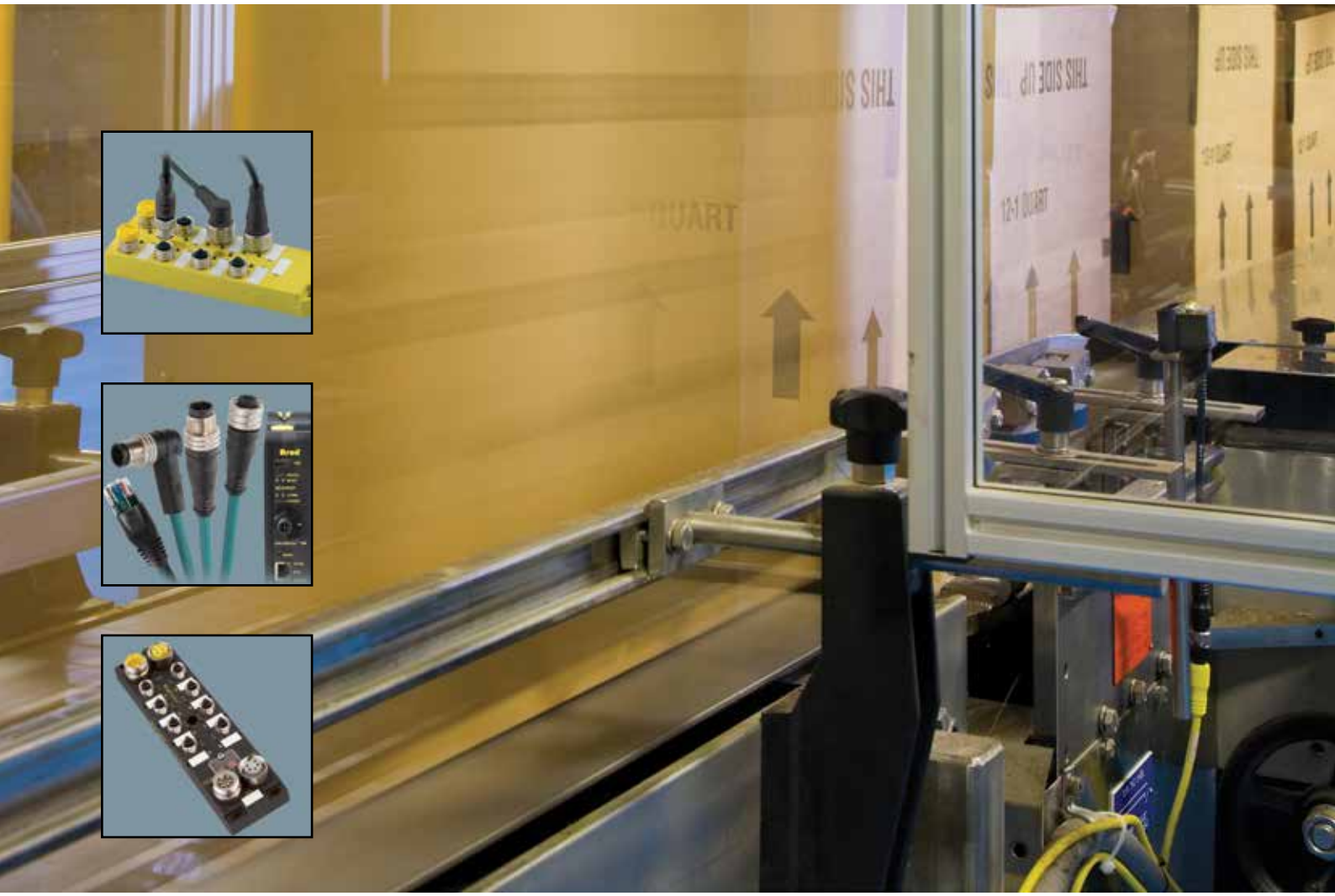
# Brad® AUTOMATION ›
# INDUSTRIAL IO DESIGNER GUIDE

*European Core Program*



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# TOTAL SYSTEM SOLUTION ›

Molex® is a leading one-source supplier of interconnect products. Our team of highly skilled experts is focused on the design, development and distribution of innovative product solutions that touch virtually every walk of life. The Molex® product portfolio is among the world's most extensive, with over 100,000 reliable products. Because our product line includes automation products for passive media, network media and power applications, Molex® can interconnect an entire automation infrastructure—one total system solution from a global company dedicated to meeting your total system needs. Molex® utilizes extensive worldwide resources to meet customer needs on a local, regional and global level. Molex® offers well-established sales, product development, manufacturing and logistics resources in Asia, Europe and the Americas.

# The products you need… when and where you need them.

## The Brad® Core Program

- Molex® supports one of **the largest portfolios of connectivity and wiring solutions** in the market for automotive, food and beverage, robotic, infrastructure, NAT and solar applications.
- The core program is part of this portfolio that is **focused on the standard requirements** related to automation in the European market and highlights the active and passive IO modules and the related connectivity products for installation in harsh environments.
- Molex® commits to **timely availability** of the core program parts and even quicker response, with delivery in 5 working days on the parts that belong to the **BradExpress program** (parts identified in bold in this guide).
- Molex® commits to **supporting its customers** by helping them choose the right network as well as the most optimized infrastructure solution for their application. The Molex® tech support team also supports its customers in selecting corresponding parts from the complete portfolio or designing customer-dedicated solutions and prototyping.

Molex® has the right solution for your automation application!

# Find the Latest Innovations and Information **at Molex.com**

For the most in-depth and up-to-date information on all our products, visit Molex.com. It's designed to help you get more done in less time with advanced search capabilities, 3D models, product specifications, easy sample ordering and more.

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Molex.com provides a first stop for comprehensive overviews of our industrial products. Some of the tools you'll find are:

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Short online videos highlight key industry products, as well as our unique cross-functional design and manufacturing capabilities.

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Available right from our home page

**Detailed Application Pages**

**Instant Access to Product Specs**

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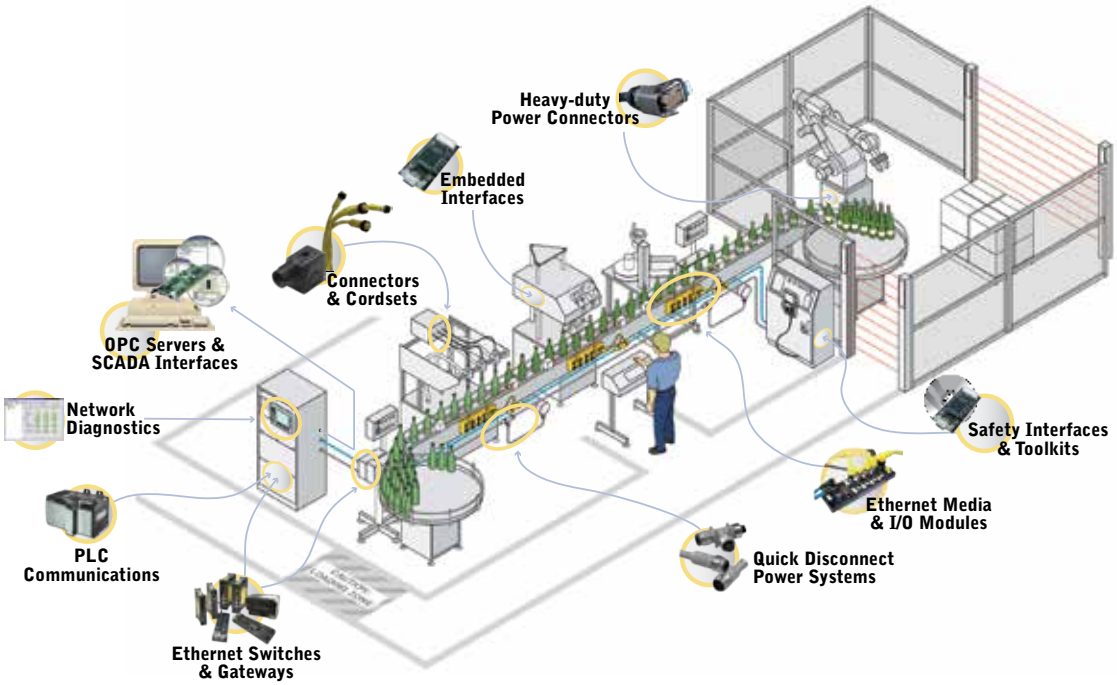
## Complete Solution For Automation Infrastructures In Harsh Environments

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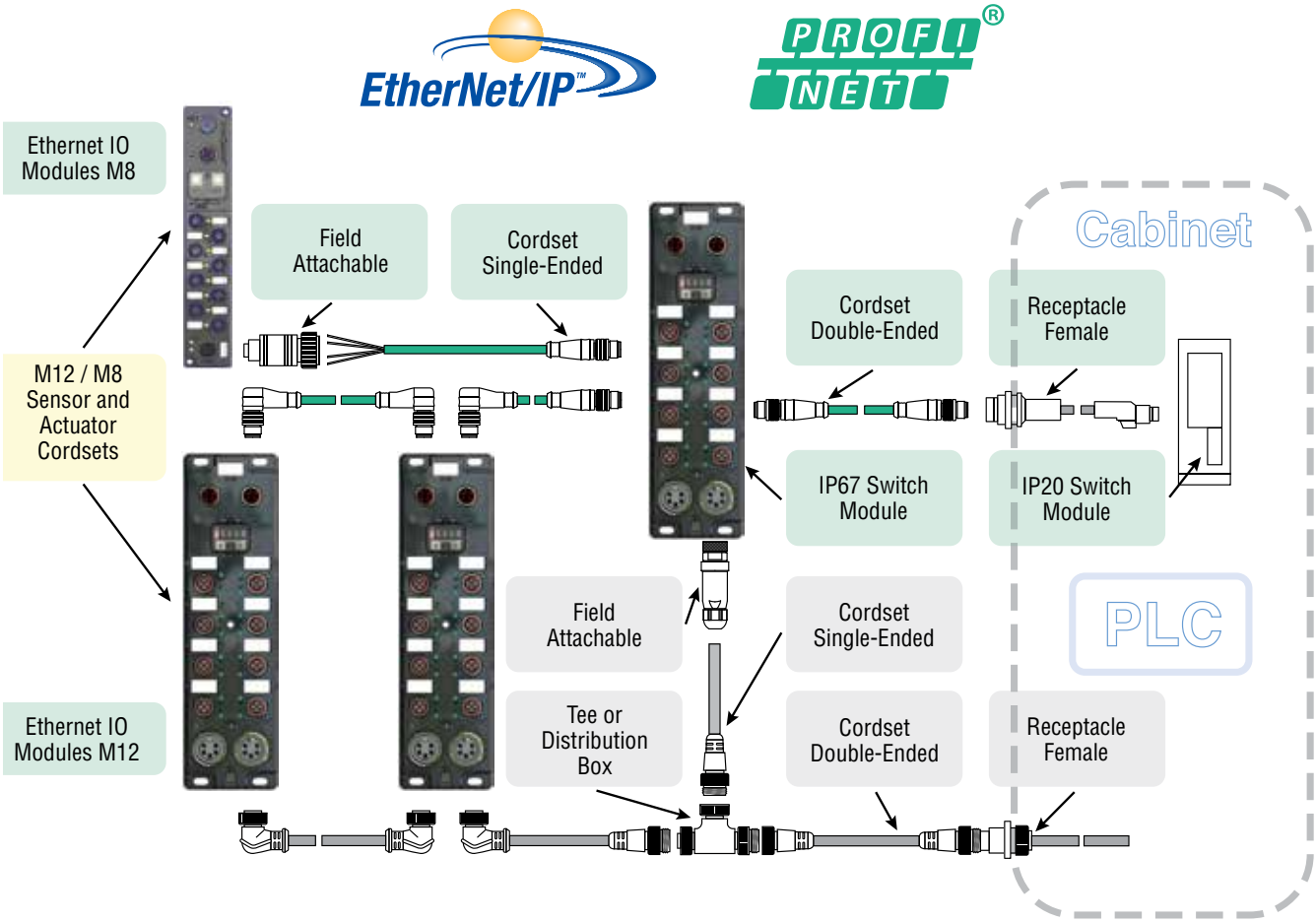
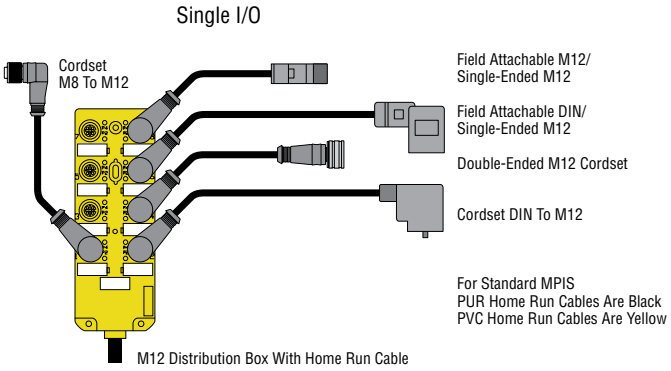
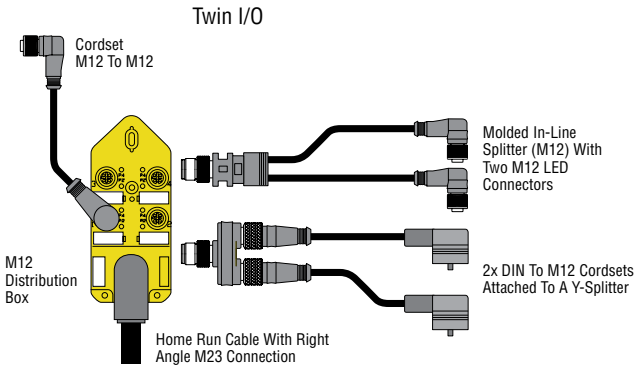
**IP67 rated digital IO modules for harsh environments are designed for direct machine mount applications.**

## Ethernet and 7/8" Power Distribution Architecture

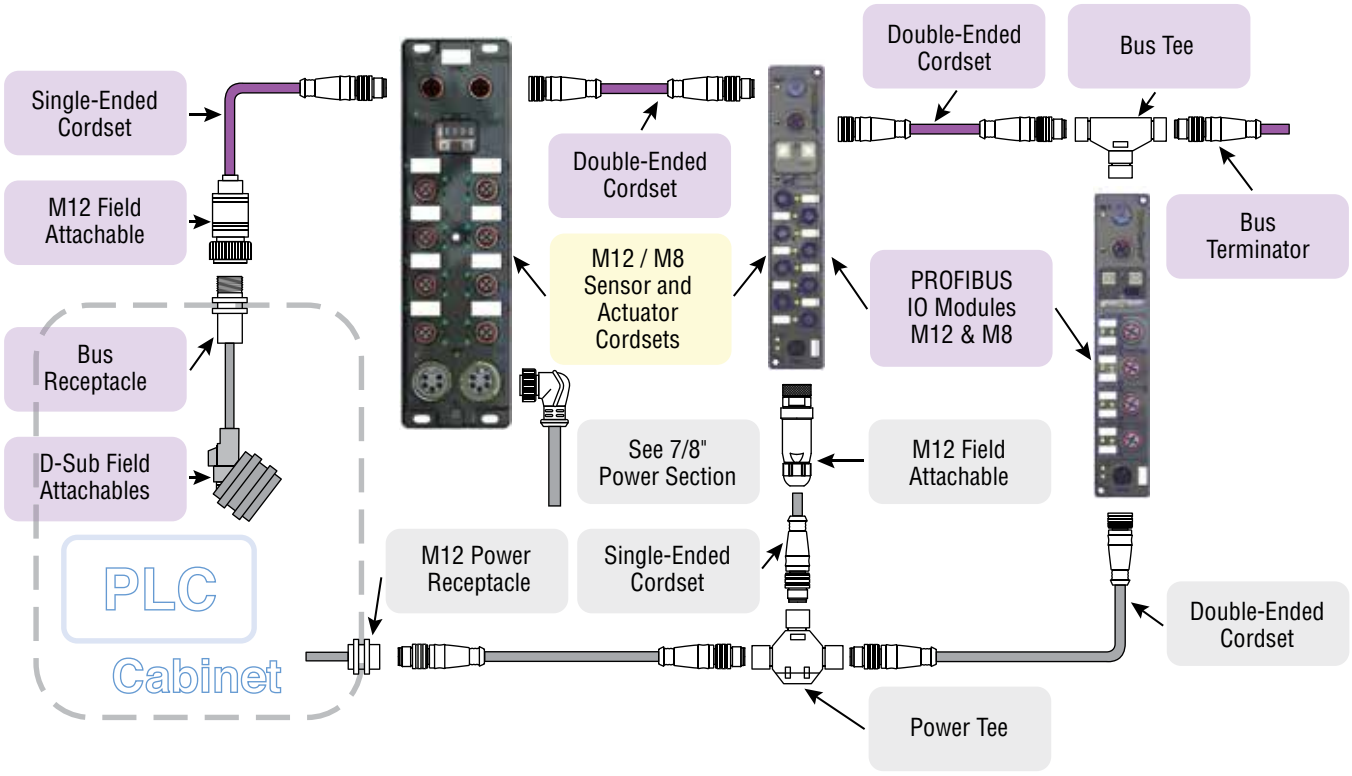



## M12 Sensor Actuator Interconnection

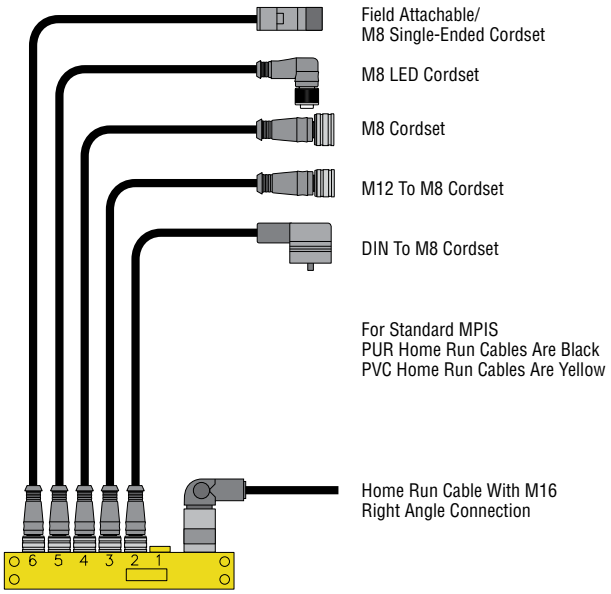

Single I/O
Cordset M8 To M12
Field Attachable M12/ Single-Ended M12
Field Attachable DIN/ Single-Ended M12
Double-Ended M12 Cordset
Cordset DIN To M12
For Standard MPIS PUR Home Run Cables Are Black PVC Home Run Cables Are Yellow
M12 Distribution Box With Home Run Cable


Twin I/O
Cordset M12 To M12
Molded In-Line Splitter (M12) With Two M12 LED Connectors
2x DIN To M12 Cordsets Attached To A Y-Splitter
M12 Distribution Box
Home Run Cable With Right Angle M23 Connection

## PROFIBUS and M12 Power Distribution Architecture




## M8 Sensor Actuator Interconnection



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# ETHERNET IO RELIABLE CONNECTIONS IN HARSH ENVIRONMENTS

**Brad®**
**Harsh IO Modules**

## Worldwide Unique Feature: Quicker Setups and More Uptime through Secure Connections Using the Brad® Ultra-Lock® Patented Connection System

- One simple push delivers a secure, consistent seal each and every time
- Eliminates connector-related intermittent signals that lead to costly production downtime
- Quick change-overs can now be a reality

## React to Problems Sooner Using Easy-to-Read Diagnostics

- Visible LEDs provide maintenance personnel with ability to easily determine I/O, module and network status
- Scrolling 4-character display for IP addressing and module status
- Built-in web server for remote monitoring, configuration and diagnostics

## Reduce Infrastructure Costs with Built-in 2-Port Ethernet Switch

- 10/100 Mbps auto-sensing
- Supports straight or crossover Ethernet cable

## Reduce Inventory Costs Using Configurable I/O

- User configurable – 16 points of digital I/O can be set as either an Input or Output (also available in fixed I/O configurations)

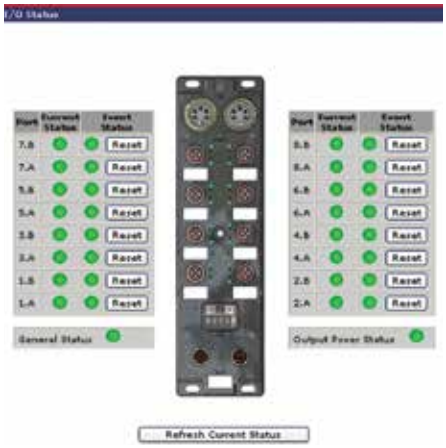
## Save Time Configuring or Replacing I/O Modules

- On PROFINET or EtherNet/IP, configuration setup can be downloaded on the Harsh IO directly from the Master, IO-Controller or Scanner
- With simple-to-use push buttons, quickly adjust the last three octets of the IP address

## Save Energy by Minimizing Power Supply

- On PROFINET, Harsh IO supports PROFIenergy service, allowing the IO-Controller to minimize power supply to the connected Harsh IO Module(s)

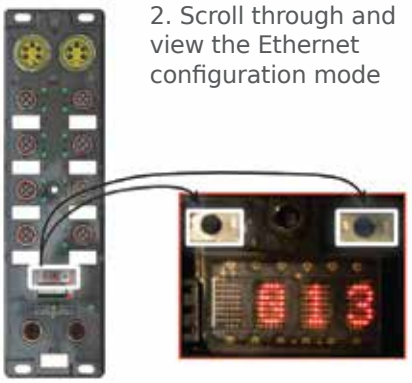
### Built-in Web Server with Password Protection



### Push Buttons

Two push buttons located above the display window are used to:

1. Quickly adjust the last octet or last 3 characters of the module's IP address
2. Scroll through and view the Ethernet configuration mode



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**IP67 rated digital IO modules for harsh environments are designed for direct machine mount applications with PROFINET-IO communication capabilities.**

# Brad® PROFINET Harsh IO Modules

Brad® Harsh IO IP67 PROFINET Modules
60mm and 30mm

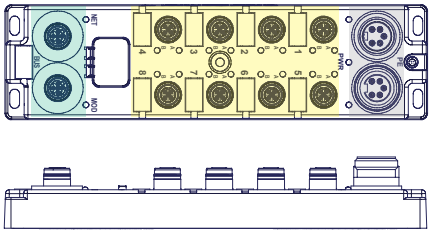
## Specifications

PROFINET IO-Device, Conformance Class B
IP addressing: DCP or static
RT I/O update, up to 1 ms
Services[2]: PROFIenergy, SNMP V1/V2/V3, LLDP S/R, MRP, I&M, EasyDevice replacement, Fast Start-Up (FSU) < 500ms
GSDML configuration file (downloadable via integrated Web server)
Embedded display[1] for diagnostic
Grounding isolation[2] between Input/logic and Output Power
Operating Temperature: -25 to +70°C
Storage Temperature: -40 to +90°C
Approvals: CE, UL, cUL, Rohs, REACH, PNO Certified

**User manual and GSDML files to download under:**
**www.molex.com** (select Brad Automation Products Support Center)

## Ordering Information

### Brad® Harsh IO IP67 PROFINET Module 60mm M12

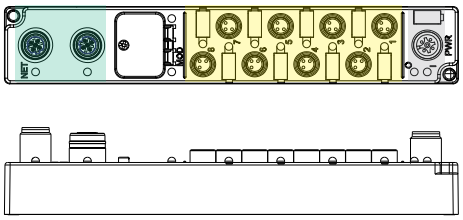


**Connectivity**

| Ethernet: | Inputs/Outputs: | Power: |
|---|---|---|
| 2x Female M12 4P D-Code<br>Built-in 2 port switch<br>Ultra-Lock® compatible | 8x Female M12 5P A-Code Dual IO signal per port<br>Inputs 24V max. 140mA Outputs 24V max. 2A<br>Ultra-Lock® compatible | 1x Male 7/8" 4 or 5 Pole<br>1x Fem. 7/8" 4 or 5 Pole<br>Voltage: 24V Input & Output, max. 8 Amps |

| Power Type | Input/ Output (PNP) | Engineering No. | Standard Order No. |
|---|---|---|---|
| 7/8" 5 Pole | 16I | TCDEP-8D0P-D1U-G | 112095-5048 |
| | 8I/8O | TCDEP-888P-D1U-G | 112095-5050 |
| | 12I/4O | TCDEP-8B4P-D1U-G | 112095-5051 |
| | 16O | TCDEP-80DP-D1U-G | 112095-5049 |
| | User Config. | TCDEP-8YYX-D1U | 112095-5037 |
| 7/8" 4 Pole(3) | 16I | TCDEP-8D0P-DYU-G | 112095-5052 |
| | 8I/8O | TCDEP-888P-DYU-G | 112095-5053 |
| | 12I/4O | TCDEP-8B4P-DYU-G | 112095-5054 |
| | 16O | TCDEP-80DP-DYU-G | 112095-5055 |

### Brad® Harsh IO IP67 PROFINET Module 30mm M8



**Connectivity**

| Ethernet: | Inputs/Outputs: | Power: |
|---|---|---|
| 2x Female M12 4P D-Code<br>Built-in 2 port switch<br>Ultra-Lock® compatible | 8x Female M8 3 Poles Single IO signal per port<br>Inputs 24V max. 140mA Outputs 24V max. 1,4A | 1x Male M12 5 Pole<br>Voltage: 24V Input & Output, max. 4 Amps |

| Power Type | Input/ Output (PNP) | Engineering No. | Standard Order No. |
|---|---|---|---|
| M12 5 Pole | 8I | TBDEP-880P-D84-G | 112095-5064 |
| | 4I/4O | TBDEP-844P-D84-G | 112095-5065 |
| | 8O | TBDEP-808P-D84-G | 112095-5066 |
| | User Config. | TBDEP-8YYP-D84-G | 112095-5067 |

(1) Only on Harsh IO 60mm model.
(2) Not available on User Configurable IO model.
(3) 4 Poles Mini-Change® (7/8") cordsets are not listed in this brochure. For more information consult our web page or industrial automation catalog.

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**IP67 rated digital IO modules for harsh environments are designed for direct machine mount applications with EtherNet/IP communication capabilities.**

# Brad® EtherNet/IP Harsh IO Modules

Brad® Harsh IO IP67 EtherNet/IP Modules
60mm and 30mm

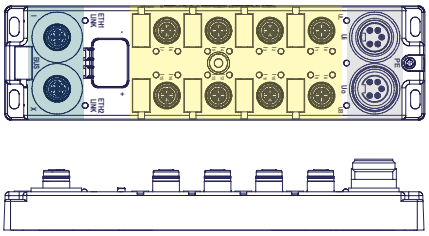
## Specifications

EtherNet/IP IO Adapter
IP address: DHCP, Static Address, and 0xF5/0xF6 objects
RT I/O update, up to 1 ms
Services: Automatic Conflict Detection (ACD), QuickConnect
< 500ms (QC Class A device)
EDS configuration file (downloadable via integrated Web server)
Embedded display[1] for diagnostic
Grounding isolation[2] between Input/logic and Output Power
Operating Temperature: -25 to +70°C
Storage Temperature: -40 to +90°C
Approvals: CE, UL, cUL, Rohs, REACH, ODVA Certified

**User manual and EDS files to download under:**
**www.molex.com** (select Brad Automation Products Support Center)

## Ordering Information

### Brad® Harsh IO IP67 EtherNet/IP Module – 60mm M12

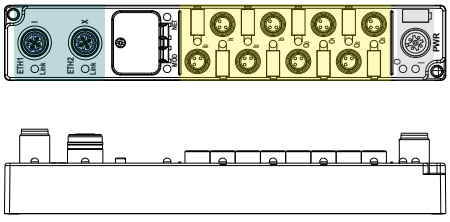


**Connectivity**

| Ethernet: | Inputs/Outputs: | Power: |
|---|---|---|
| 2x Female M12 4P D-Code<br>Built-in 2 port switch<br>Ultra-Lock® compatible | 8x Female M12<br>5P A-Code Dual IO signal per port<br>Inputs 24V max. 140mA Outputs 24V max. 2A<br>Ultra-Lock® compatible | 1x Male 7/8"<br>4 or 5 Pole<br>1x Fem. 7/8"<br>4 or 5 Pole<br>Voltage: 24V Input & Output, max.<br>8 Amps |

| Power Type | Input/ Output (PNP) | Engineering No. | Standard Order No. |
|---|---|---|---|
| 7/8" 5 Pole | 16I | TCDEI-8D0P-D1U-G | 112095-5060 |
| | 8I/8O | TCDEI-888P-D1U-G | 112095-5061 |
| | 12I/4O | TCDEI-8B4P-D1U-G | 112095-5063 |
| | 16O | TCDEI-80DP-D1U-G | 112095-5062 |
| | User Config. | TCDEI-8YYX-D1U | 112095-5011 |
| 7/8" 4 Pole(3) | 16I | TCDEI-8D0P-DYU-G | 112095-5040 |
| | 8I/8O | TCDEI-888P-DYU-G | 112095-5041 |
| | 12I/4O | TCDEI-8B4P-DYU-G | 112095-5043 |
| | 16O | TCDEI-80DP-DYU-G | 112095-5042 |
| | User Config. | TCDEI-8YYX-DYU | 112095-5020 |

### Brad® Harsh IO IP67 EtherNet/IP Module – 30mm M8



**Connectivity**

| Ethernet: | Inputs/Outputs: | Power: |
|---|---|---|
| 2x Female M12 4P D-Code<br>Built-in 2 port switch<br>Ultra-Lock® compatible | 8x Female M8<br>3 Poles Single IO signal per port<br>Inputs 24V max. 140mA Outputs 24V max. 1,4A | 1x Male M12 5 Pole<br>Voltage: 24V Input & Output, max.<br>4 Amps |

| Power Type | Input/ Output (PNP) | Engineering No. | Standard Order No. |
|---|---|---|---|
| M12 5 Pole | 8I | TBDEI-880P-D84-G | 112095-5068 |
| | 4I/4O | TBDEI-844P-D84-G | 112095-5069 |
| | 8O | TBDEI-808P-D84-G | 112095-5070 |
| | User Config. | TBDEI-8YYP-D84-G | 112095-5071 |

(1) Only on Harsh IO 60mm model.
(2) Not available on User Configurable IO model.
(3) 4 Poles Mini-Change® (7/8") cordsets are not listed in this brochure.
For more information consult our web page or industrial automation catalog.

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**IP67 rated digital IO modules for harsh environments are designed for direct machine mount applications with Modbus TCP communication capabilities.**

# Brad® Modbus TCP Harsh IO Modules

## Specifications

Modbus TCP server
Speed: 10/100 Mbps. (auto-negotiation, full duplex)
Data Access: I/O data
IP address: DHCP, Static Address
Embedded display for diagnostic
Operating Temperature: -25 to +70°C
Storage Temperature: -40 to +90°C
Approvals: CE, UL, cUL, Rohs, REACH, Schneider Certified

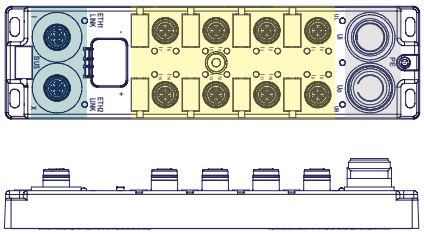
MODBUS TCP

Brad® Harsh IO IP67 ModBus TCP Module 60mm

**User manual to download under:**
**www.molex.com** (select Brad Automation Products Support Center)

## Ordering Information

### Brad® Harsh IO IP67 Modbus TCP/IP Module – 60mm M12



**Connectivity**

| Ethernet: | Inputs/Outputs: | Power: |
|---|---|---|
| 2x Female M12 4P D-Code<br>Built-in 2 port switch<br>Ultra-Lock® compatible | 8x Female M12<br>5P A-Code Dual IO signal per port<br>Inputs 24V max.<br>140mA Outputs<br>24V max. 2A Ultra-Lock® compatible | 1x Male 7/8"<br>4 or 5 Pole<br>1x Fem. 7/8"<br>4 or 5 Pole<br>Voltage: 24V Input & Output, max.<br>8 Amps |

| Power Type | Input/ Output | | Engineering No. | Standard Order No. |
|---|---|---|---|---|
| 7/8" 5 Pole | NPN | 16I | TCDEM-8D0N-D1U | 112095-0007 |
| | | 8I/8O | TCDEM-888N-D1U | 112095-0001 |
| | | 12I/4O | TCDEM-8B4N-D1U | 112095-0003 |
| | | 14I/2O | TCDEM-8C2N-D1U | 112095-0005 |
| | User Config. | | TCDEM-8YYX-D1U | 112095-0009 |
| | PNP | 16I | TCDEM-8D0P-D1U | 112095-0008 |
| | | 8I/8O | TCDEM-888P-D1U | 112095-0002 |
| | | 12I/4O | TCDEM-8B4P-D1U | 112095-0004 |
| | | 14I/2O | TCDEM-8C2P-D1U | 112095-0006 |
| 7/8" 4 Pole(3) | NPN | 16I | TCDEM-8D0N-DYU | 112095-5021 |
| | | 8I/8O | TCDEM-888N-DYU | 112095-5024 |
| | | 12I/4O | TCDEM-8B4N-DYU | 112095-5023 |
| | | 14I/2O | TCDEM-8C2N-DYU | 112095-5022 |
| | User Config. | | TCDEM-8YYX-DYU | 112095-5038 |
| | PNP | 16I | TCDEM-8D0P-DYU | 112095-5025 |
| | | 8I/8O | TCDEM-888P-DYU | 112095-5028 |
| | | 12I/4O | TCDEM-8B4P-DYU | 112095-5027 |
| | | 14I/2O | TCDEM-8C2P-DYU | 112095-5026 |

(1) Only on Harsh IO 60mm model.
(2) Not available on User Configurable IO model.
(3) 4 Poles Mini-Change® (7/8") cordsets are not listed in this brochure. For more information consult our web page or industrial automation catalog.

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# Brad® Harsh Duty Ethernet Switches

**IP67 rated fast Ethernet switches for harsh environments are designed for direct machine mount applications.**

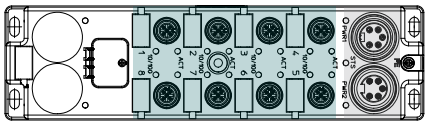
## Specifications

Unmanaged IP67 switches
Speed 10/100Mbps auto negotiation, full or half duplex
Auto-learning with no software or configuration required
Operating Temperature: -20 to +75°C
Storage Temperature: -25 to +90°C
Class1 Div 2 (Oil and Gas, Mining and utility applications)
Approvals: CE, UL, cUL

Brad® Harsh Ethernet switches 60mm and 30mm

## Ordering Information

### Brad® Harsh Unmanaged Switches IP67 – 60mm M12

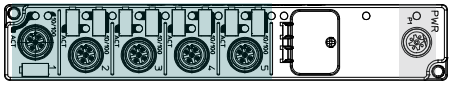


| Engineering No. | Standard Order No. |
|---|---|
| DRL-780 | 112105-5002 |

**Connectivity**

| Ethernet: | Power: |
|---|---|
| 8x Female M12 4P D-Code Ultra-Lock® compatible | 1x Male 7/8" 5 Pole<br>1x Fem. 7/8" 5 Pole<br>Dual power supply entry, 9-36VDC (continuous) |

### Brad® Harsh Unmanaged Switches IP67 – 30mm M12



| Engineering No. | Standard Order No. |
|---|---|
| DRL-750 | 112111-5001 |

**Connectivity**

| Ethernet: | Power: |
|---|---|
| 5x Female M12 4P D-Code | 1x Male M12 5 Pole<br>9-36VDC (continuous) |

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# Brad® PROFINET Infrastructure Components

**Plug & Play infrastructure to interconnect Ethernet IP67 devices based on D Code M12 standard connectors. Designed with 2 versions of cable to comply to the PROFINET (PUR, Green, AWG22) and EtherNet/IP (PVC, Teal, AWG26) specification and to cover most customer's Ethernet applications.**

## Ordering Information

### Brad® PROFINET Single-Ended M12 Cordsets

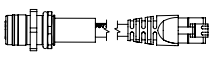
| PROFINET Shielded PUR Cable | | | | |
|---|---|---|---|---|
| | Male Straight | | Male 90˚ | |
| Length | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 5m | E10A00611M050 | 130048-0281 | E10A00711M050 | 130048-0286 |
| 10m | E10A00611M100 | 130048-0282 | E10A00711M100 | 130048-0287 |
| 20m | E10A00611M200 | 130048-0283 | E10A00711M200 | 130048-0288 |
| 30m | E10A00611M300 | 130048-0284 | — | — |
| 50m | E10A00611M500 | 130048-0285 | — | — |

### Brad® PROFINET Double-Ended M12 Cordsets

| PROFINET Shielded PUR Cable | | | | |
|---|---|---|---|---|
| | Male to Male Straight | | Male to Male 90˚ | |
| Length | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 1m | E11A06011M010 | 120108-0236 | E11A06311M010 | 120108-0295 |
| 2m | **E11A06011M020*** | **120108-0199*** | **E11A06311M020*** | **120108-0200*** |
| 5m | E11A06011M050 | 120108-0238 | E11A06311M050 | 120108-0296 |
| 10m | E11A06011M100 | 120108-0243 | E11A06311M100 | 120108-0297 |
| 15m | E11A06011M150 | 120108-0246 | — | — |
| 20m | E11A06011M200 | 120108-0248 | — | — |
| 30m | E11A06011M300 | 120108-0250 | — | — |

∗ Parts in bold belong to the BradExpress Program (see page 3)

### Brad® PROFINET M12 Receptacle



**Female M12 to RJ45 Straight**

| PROFINET Shielded PUR Cable | | |
|---|---|---|
| Length | Engineering No. | Standard Order No. |
| 1m | ERWPAU7011M010 | 120108-0252 |
| 2m | ERWPAU7011M020 | 120108-0206 |

**PROFINET Cable Specification**

AWG22 Shielded PROFINET Cat5e cable

Jacket material: green PUR

Conductors: 2 Pairs x 0.34mm² (White, Yellow, Blue, Orange)

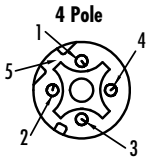
Operating Temperature: -20°C to +60°C

C-Track compatible (5M cycles)

Bend radius: 5x cable diameter

Halogen free and silicon free

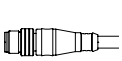
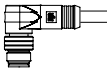
Approvals: UL, CSA




1 - Orange
2 - Blue
3 - Orange-White
4 - Blue-White
5 - D-Code

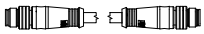
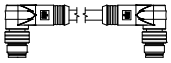
## Ordering Information

### Brad® EtherNet/IP Single-Ended M12 Cordsets

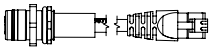
| EtherNet/IP Shielded PVC Cable | | | | |
|---|---|---|---|---|
| | Male Straight | | Male 90˚ | |
| Length | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 5m | E10A00615M050 | 130048-0056 | E10A00715M050 | 130048-0080 |
| 10m | E10A00615M100 | 130048-0057 | E10A00715M100 | 130048-0081 |
| 20m | E10A00615M200 | 130048-8006 | E10A00715M200 | 130048-0290 |
| 30m | E10A00615M300 | 130048-0059 | — | — |
| 50m | E10A00615M500 | 130048-0289 | — | — |

### Brad® EtherNet/IP Double-Ended M12 Cordsets

| EtherNet/IP Shielded PVC Cable (Teal) | | | | |
|---|---|---|---|---|
| | Male to Male Straight | | Male to Male 90˚ | |
| Length | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 1m | E11A06015M010 | 130048-0122 | E11A06315M010 | 130048-0179 |
| 2m | E11A06015M020 | 130048-0124 | E11A06315M020 | 130048-0181 |
| 5m | E11A06015M050 | 130048-0126 | E11A06315M050 | 130048-0183 |
| 10m | E11A06015M100 | 130048-0128 | E11A06315M100 | 130048-0185 |
| 15m | E11A06015M150 | 130048-0130 | — | — |
| 20m | E11A06015M200 | 130048-0010 | — | — |
| 30m | E11A06015M300 | 130048-0132 | — | — |

### Brad® EtherNet/IP M12 Receptacle



**Female M12 to RJ45 Straight**

| EtherNet/IP Shielded PVC Cable | | |
|---|---|---|
| Length | Engineering No. | Standard Order No. |
| 1m | **ERWPAB3002M010*** | **130058-0025*** |
| 2m | ERWPAB3002M020 | 130054-0021 |

* Parts in bold belong to the BradExpress Program (see page 3)

**EtherNet/IP Cable Specification**

Shielded Ethernet Cat5e cable

Conductors: 2 Pairs AWG26 (White/Green, Green, White/Orange and Orange)

Jacket Material: Teal PVC

Operating Temperature: -20°C to +75°C

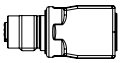
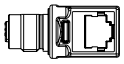
Sun and Oil resistant

Approvals: UL, cUL, EtherNet/IP

**Note:**
Further technical information, datasheet or drawing can be downloaded from the Molex® website using the ordering part number.

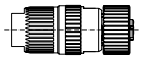
## Ordering Information

### Brad® Ethernet Bulkhead Adapter (M12 Female to RJ45)

| Straight | | 90° | |
|---|---|---|---|
| Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| ER1PADAPTER | 130054-0009 | ER1PADAPTER90 | 130054-0010 |

### Brad® Ethernet Field Attachable



| M12 Male | | M12 Female | |
|---|---|---|---|
| Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| **E1AS06-52*** | **130047-0018*** | **E1AS00-52*** | **130047-0017*** |

∗ Parts in bold belong to the BradExpress Program (see page 3)

### Brad® RJ45 Connector

| Engineering No. | Standard Order No. |
|---|---|
| 85720-1050 | 85720-1050 |

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## IP67 rated digital IO modules for harsh environments are designed for direct machine mount applications.

# Brad® PROFIBUS Harsh IO Modules

## Specifications

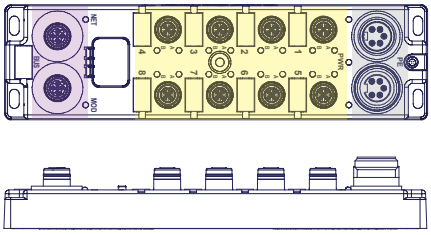
PROFIBUS DP-V0 Slave according EN 50170
Auto baud: all baud rates up to 12M Baud
Address Settings: 1 – 99 by 2 rotary switches
Operating Temperature: -25 to +70°C
Storage Temperature: -25 to +90°C
Approvals: CE, UL, PNO Certification

**User manual and GSD files to download under:**
**www.molex.com** (select Brad Automation Products Support Center)

Brad® Harsh IO IP67 PROFIBUS Modules
60mm and 30mm

## Ordering Information

### Brad® Harsh IO IP67 PROFIBUS Module – 60mm M12

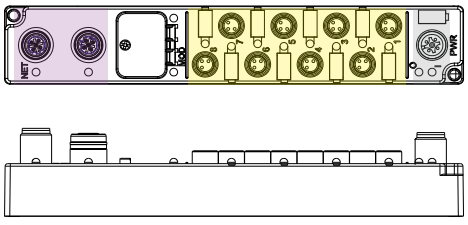


**Connectivity**

| PROFIBUS: | Inputs/Outputs: | Power: |
|---|---|---|
| 1x Male M12 5P B-Code<br>1x Fem. M12 5P B-Code | 8x Female M12 5P A-CodeDual IO signal per port<br>Inputs 24V max. 140mA<br>Outputs 24V max. 2A Ultra-Lock® compatible | 1x Male 7/8" 5 Poles<br>1x Female 7/8" 5 Poles<br>Voltage: 24V Input & Output, max. 8 Amps |

| Power Type | Input/ Output | | Engineering No. | Standard Order No. |
|---|---|---|---|---|
| 7/8" 5 Pole | NPN | 16I | TCDPB-8D0N-B1U | 112038-0030 |
| | | 14I/2O | TCDPB-8C2N-B1U | 112038-0028 |
| | | 12I/4O | TCDPB-8B4N-B1U | 112038-0026 |
| | | 8I/80 | TCDPB-888N-B1U | 112038-0024 |
| | User Config. | | TCDPB-8YYX-B1U | 112038-5005 |
| | PNP | 16I | TCDPB-8D0P-B1U | 112038-0031 |
| | | 14I/2O | TCDPB-8C2P-B1U | 112038-0029 |
| | | 12I/4O | TCDPB-8B4P-B1U | 112038-0027 |
| | | 8I/80 | TCDPB-888P-B1U | 112038-0025 |

### Brad® Harsh IO IP67 PROFIBUS Module – 30mm M8



**Connectivity**

| PROFIBUS: | Inputs/Outputs: | Power: |
|---|---|---|
| 1x Male M12 5P B-Code<br>1x Fem. M12 5P B-Code | 8x Female M8 3 Poles<br>Single IO signal per port<br>Inputs 24V max. 140mA<br>Outputs 24V max. 1,4A | 1x Male M12 5 Pole<br>Voltage: 24V Input & Output, max. 4 Ampere |

| Power Type | Input/ Output | | Engineering No. | Standard Order No. |
|---|---|---|---|---|
| M12 5 Pole | NPN | 8I | TBDPB-880N-B84 | 112038-0019 |
| | | 6I/2O | TBDPB-862N-B84 | 112038-0017 |
| | | 4I/4O | TBDPB-844N-B84 | 112038-0015 |
| | PNP | 8I | TBDPB-880P-B84 | 112038-0021 |
| | | 6I/2O | TBDPB-862P-B84 | 112038-0018 |
| | | 4I/4O | TBDPB-844P-B84 | 112038-0016 |
| | | 8O | TBDPB-808P-B84 | 112038-0014 |

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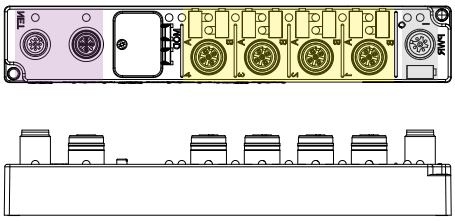
# Brad® PROFIBUS Harsh IO Modules

## Ordering Information

### Brad® Harsh IO IP67 PROFIBUS Module – 30mm M12



**Connectivity**

| PROFIBUS: | Inputs/Outputs: | Power: |
|---|---|---|
| 1x Male M12 5P B-Code<br>1x Fem. M12 5P B-Code | 4x Female M12 5P A-Code Dual IO signal per port<br>Inputs 24V max. 140mA Outputs 24V max. 1,4A<br>Ultra-Lock® compatible | 1x Male M12 5 Pole<br>Voltage: 24V Input & Output, max.<br>4 Ampere |

| Power Type | Input/ Output | | Engineering No. | Standard Order No. |
|---|---|---|---|---|
| M12 5 Pole | NPN | 8I | TBDPB-480N-B8U | 112038-0009 |
| | | 6I/2O | TBDPB-462N-B8U | 112038-0007 |
| | | 4I/4O | TBDPB-444N-B8U | 112038-0005 |
| | PNP | 8I | TBDPB-480P-B8U | 112038-0011 |
| | | 6I/2O | TBDPB-462P-B8U | 112038-0008 |
| | | 4I/4O | TBDPB-444P-B8U | 112038-0006 |
| | | 8O | TBDPB-408P-B8U | 112038-0003 |

All Brad® IP67 harsh IO modules with Micro-Change® (M12) ports accept both threaded cordsets and the new Brad® Ultra-Lock® Connection System, the fastest, easiest and most secure connection ever.

Ultra-Lock® technology is designed for higher perform-ance and reliability to eliminate downtime, increase productivity and lower costs.

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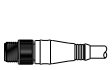
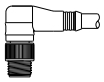
**Plug & Play PROFIBUS infrastructure to interconnect IP67 devices based on B-coded M12 standard connectors. Designed with PUR jacket material for better chemical and oil resistance, low-resistance contact design and 360° shielded head design to reduce RFI/EMI.**

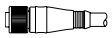
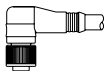
# Brad® PROFIBUS Infrastructure Components

## Ordering Information

### Brad® PROFIBUS Single-Ended M12 Cordsets

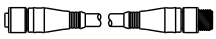
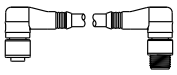



| PROFIBUS Shielded PUR Cable | | | | |
|---|---|---|---|---|
| | Male Straight | | Male 90˚ | |
| Length | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 5m | B05S06PP4M050 | 120098-0104 | B05S07PP4M050 | 120098-0111 |
| 10m | B05S06PP4M100 | 120098-0107 | B05S07PP4M100 | 120098-0112 |
| 20m | B05S06PP4M200 | 120098-8053 | B05S07PP4M200 | 120098-8054 |
| 30m | B05S06PP4M300 | 120098-0108 | B05S07PP4M300 | 120098-8055 |

| PROFIBUS Shielded PUR Cable | | | | |
|---|---|---|---|---|
| | Female Straight | | Female 90˚ | |
| Length | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 5m | B05S00PP4M050 | 120098-0087 | B05S01PP4M050 | 120098-0095 |
| 10m | B05S00PP4M100 | 120098-0089 | B05S01PP4M100 | 120039-0136 |
| 20m | B05S00PP4M200 | 120039-0122 | B05S01PP4M200 | 120098-8056 |
| 30m | B05S00PP4M300 | 120098-0222 | B05S01PP4M300 | 120098-8057 |

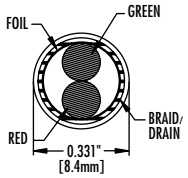
### Brad® PROFIBUS Double-Ended M12 Cordsets

| PROFIBUS Shielded PUR Cable | | | | |
|---|---|---|---|---|
| | Female to Male Straight | | Female to Male 90˚ | |
| Length | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 1m | BB5S30PP4M010 | 120098-0006 | BB5S33PP4M010 | 120098-0029 |
| 2m | BB5S30PP4M020 | 120098-0007 | **BB5S33PP4M020*** | **120098-0031*** |
| 5m | BB5S30PP4M050 | 120098-0010 | BB5S33PP4M050 | 120098-0033 |
| 10m | BB5S30PP4M100 | 120098-0014 | BB5S33PP4M100 | 120098-0035 |
| 15m | BB5S30PP4M150 | 120098-0160 | BB5S33PP4M150 | 120098-8050 |
| 20m | BB5S30PP4M200 | 120098-0017 | BB5S33PP4M200 | 120098-8051 |
| 30m | BB5S30PP4M300 | 120098-0019 | BB5S33PP4M300 | 120098-8052 |

PROFIBUS®

**PROFIBUS Cable Specification**




PROFIBUS Twisted Pair AWG22 (0,34mm$^2$) cable

Conductors: 2x Red and Green

Jacket Material: Purple PUR

Voltage Rating: 300V

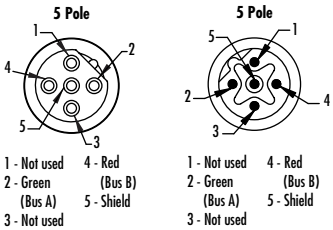
Operating Temperature: -40 to +60°C

C-Track compatible (3M cycles)

Bend radius: 10x cable diameter

Approvals: UL, CSA

**PROFIBUS M12 B-coded Connector Pinout**
(front view)




* Parts in bold belong to the BradExpress Program (see page 3)

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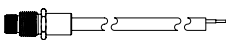
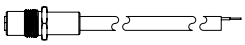
# Brad® PROFIBUS Infrastructure Components

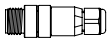
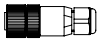
## Ordering Information

### Brad® PROFIBUS M12 Receptacles

| PROFIBUS Shielded PUR Cable | | | | |
|---|---|---|---|---|
| | Male | | Female | |
| Length | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 2m | BR5U76PP4M0203 | 120099-0015 | BR5U70PP4M0203 | 120099-0007 |
| 4m | **BR5U76PP4M0403*** | **120099-0016*** | BR5U70PP4M0403 | 120099-0009 |

### Brad® PROFIBUS M12 Field Attachables

| Male | | Female | |
|---|---|---|---|
| Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| **BA5S06-32*** | **120100-0002*** | **BA5S00-32*** | **120100-0001*** |

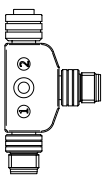
### Brad® PROFIBUS IP20 Bus Terminators

| | With Diagnostic | | Without Diagnostic | |
|---|---|---|---|---|
| Desc. | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| Straight | **MA9D00-42*** | **120103-5001*** | — | — |
| 90° | **PA9D01-42*** | **120103-0001*** | **PA9S01-42*** | **120103-0005*** |
| 45° | **PA9D0B-42*** | **120103-0003*** | — | — |

### Brad® PROFIBUS Accessories

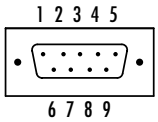
| PROFIBUS M12 Male Terminator | |
|---|---|
| Engineering No. | Standard Order No. |
| **B05S06*** | **120102-0002*** |

| PROFIBUS M12 Bus Tee | |
|---|---|
| Engineering No. | Standard Order No. |
| **PDTS01*** | **120101-0002*** |



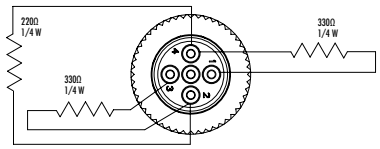
* Parts in bold belong to the BradExpress Program (see page 3)

### PROFIBUS Terminator Resistor Wiring

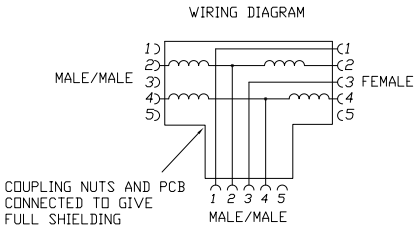


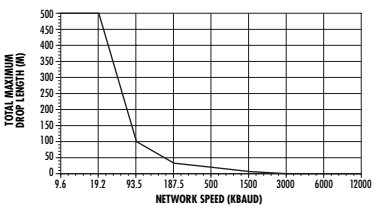

1 - Not used
2 - Not used
3 - Red (Bus B)
4 - Not used
5 - Not used
6 - Not used
7 - Not used
8 - Green (Bus A)
9 - Not used

### PROFIBUS Terminator Resistor Wiring




### PROFIBUS Tee Wiring



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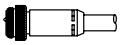
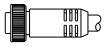
# Brad® Mini-Change® 7/8" Auxiliary Power Infrastructure Components

**Plug & Play 5 Pole power distribution infrastructure to interconnect IP67 devices based on the 7/8" standard connectors also called Mini-Change®.**

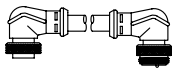
## Ordering Information

### Brad® Mini-Change® Single-Ended 5 Pole Cordsets

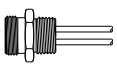
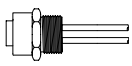
| 5 Pole Mini-Change® Auxiliary Power PUR Cable | | | | |
|---|---|---|---|---|
| | Male Straight | | Female Straight | |
| Length | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 5m | 105006B21M050 | 130006-8139 | 105000B21M050 | 130006-8131 |
| 10m | 105006B21M100 | 130006-8140 | 105000B21M100 | 130006-8132 |
| 20m | 105006B21M200 | 130006-8141 | 105000B21M200 | 130006-8133 |
| 30m | 105006B21M300 | 130006-8142 | 105000B21M300 | 130006-8134 |

### Brad® Mini-Change® Double-Ended 5 Pole Cordsets



| 5 Pole Mini-Change® Auxiliary Power PUR Cable | | | | |
|---|---|---|---|---|
| | Female to Male Straight | | Female to Male 90˚ | |
| Length | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 1m | 115030B21M010 | 130010-8029 | 115033B21M010 | 130010-8036 |
| 2m | 115030B21M020 | 130010-8030 | 115033B21M020 | 130010-8037 |
| 3m | 115030B21M030 | 130010-8031 | 115033B21M030 | 130010-8038 |
| 5m | 115030B21M050 | 130010-8032 | 115033B21M050 | 130010-8039 |
| 10m | 115030B21M100 | 130010-8033 | 115033B21M100 | 130010-8040 |
| 15m | 115030B21M150 | 130010-8034 | 115033B21M150 | 130010-8041 |
| 20m | 115030B21M200 | 130010-8035 | 115033B21M200 | 130010-8042 |

### Brad® Mini-Change® 5 Pole Receptacles

| 5 Pole Mini-Change® Auxiliary Power PUR Cable | | | | |
|---|---|---|---|---|
| | Male Receptacle | | Female Receptacle | |
| Length | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 1m | 1R5006A80M010 | 130013-8078 | 1R5000A80M010 | 130013-8076 |
| 2m | 1R5006A80M020 | 130013-8079 | 1R5000A80M020 | 130013-8077 |

| Description | Engineering No. | Standard Order No. |
|---|---|---|
| Gasket for Receptacle, 1/2" | 00-5091 | 130180-0417 |
| Locknut for Receptacle, 1/2" 14NPT | 30-1100 | 130184-0031 |

**Mini-Change®**
**5 Pole Power Cable Specification**

5 Pins AWG16 cable for 24V Power distribution

Conductors: 5x1,5mm² (White, Orange, Red, Black, Green/Yellow)

Jacket Material: Black PUR

Voltage Rating: 300V

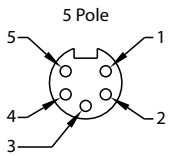
Operating Temperature: -40 to +60°C

C-Track compatible (3M cycles)

Bend radius: 10x cable diameter

Approvals: UL, CSA

**5 Pole**
**Female Connector**
**PinOut**
(Front view)

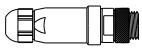
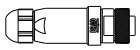



1. Black – Output Power V-
2. Blue – Bus Power V-
3. Green/Yellow – Ground
4. Brown – Bus Power V+
5. White – Output Power V+

# Brad® Mini-Change® 7/8" Auxiliary Power Infrastructure Components

## Ordering Information

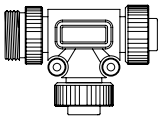
### Brad® Mini-Change® 5 Pole Field Attachable Connector

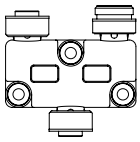
| Male | | Female | |
|---|---|---|---|
| Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 1A5006-345 | 130017-0029 | 1A5000-345 | 130017-0023 |

### Brad® Mini-Change® 5 Pole Tees

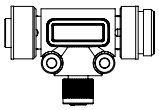
| Mini-Change® Tee | |
|---|---|
| Engineering No. | Standard Order No. |
| DN3020 | 130035-0057 |



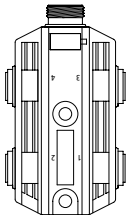
| Mini-Change® Y-Splitter | |
|---|---|
| Engineering No. | Standard Order No. |
| DN3200 | 130035-0071 |



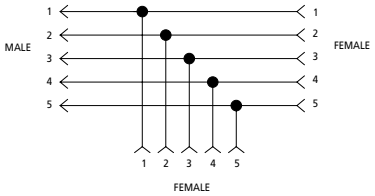
| Mini-Change® Tee w/M12 Drop | |
|---|---|
| Engineering No. | Standard Order No. |
| DND3020 | 130039-0341 |



| Mini-Change® Distribution Box | | |
|---|---|---|
| Description | Engineering No. | Standard Order No. |
| 4 Ports | DN4000 | 130036-0005 |
| 6 Ports | DN6000 | 130036-0008 |

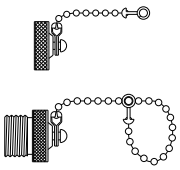


**5 Pole Mini-Change® Tee, Y-Splitter and Distribution Box Wiring**



### Brad® Mini-Change® Accessories

| Mini-Change® Caps | | |
|---|---|---|
| Description | Engineering No. | Standard Order No. |
| Int. Thread | 65-0086 | 130201-1111 |
| Ext. Thread | 65-0085 | 130201-1109 |



**Note:**
Further technical information, datasheet or drawing can be downloaded from the Molex® website using the Standard Order part number listed.

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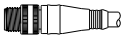
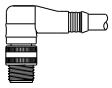
# Brad® Micro-Change® M12 Auxiliary Power Infrastructure Components

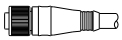
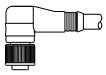
## Plug & Play 5 Pole power distribution infrastructure to interconnect IP67 devices based on the M12 A-code standard connectors.

## Ordering Information

### Brad® Micro-Change® M12 Single-Ended 5 Pole Cordsets

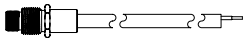
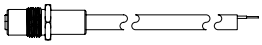



| E03 PVC Cable | | | | |
|---|---|---|---|---|
| | Male Straight | | Male 90° | |
| Length | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 5m | 805006E03M050 | 120006-1345 | 805007E03M050 | 120006-2929 |
| 10m | 805006E03M100 | 120006-2209 | 805007E03M100 | 120006-2498 |
| 20m | 805006E03M200 | 120065-8897 | 805007E03M200 | 120065-9146 |
| 30m | 805006E03M300 | 120065-9145 | | |
| **H09 PUR Cable** | | | | |
| 5m | 805006H09M050 | 120065-8746 | 805007H09M050 | 120065-8753 |
| 10m | 805006H09M100 | 120065-8747 | 805007H09M100 | 120065-8754 |
| 20m | 805006H09M200 | 120065-9141 | 805007H09M200 | 120065-9143 |
| 30m | 805006H09M300 | 120065-9142 | | |

| E03 PVC Cable | | | | |
|---|---|---|---|---|
| | Female Straight | | Female 90° | |
| Length | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 5m | **805000E03M050*** | **120065-1978*** | 805001E03M050 | 120006-0654 |
| 10m | **805000E03M100*** | **120006-0638*** | 805001E03M100 | 120006-0657 |
| 20m | 805000E03M200 | 120065-8081 | 805001E03M200 | 120065-9147 |
| 30m | 805000E03M300 | 120006-3779 | | |
| **H09 PUR Cable** | | | | |
| 5m | 805000H09M050 | 120065-8173 | 805001H09M050 | 120065-8297 |
| 10m | 805000H09M100 | 120065-8174 | 805001H09M100 | 120065-8298 |
| 20m | 805000H09M200 | 120065-8780 | 805001H09M200 | 120065-9140 |
| 30m | 805000H09M300 | 120065-9144 | | |

### Brad® Micro-Change® M12 Auxiliary Power 5 Pole Receptacles

| PVC Wires | | | | |
|---|---|---|---|---|
| | Male | | Female | |
| Length | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 2m | 8R5E36E03M020 | 120070-8173 | 8R5E30E03M020 | 120070-8171 |
| 3m | 8R5E36E03M030 | 120070-8174 | 8R5E30E03M030 | 120070-8172 |

### E03 PVC M12 Cable Specification

For use in packaging machines and production lines, in static or less demanding environments.

Conductors: 3x0,34 4x0,34 or 5x0,34mm²

(Black, Brown, Blue, White, Grey)

Jacket Material: Black PVC

Voltage Rating: 300V, Max 4 Amps

Operating Temperature: -30 to+80°C

Diameter 3 pole 4,9 $^{-0,1+0,3}$ mm
Diameter 4 pole 5,4 $^{-0,1+0,3}$ mm
Diameter 5 pole 5,8 $^{-0,1+0,3}$ mm

Approvals: UL, CSA

### H09 PUR M12 Cable Specification

For use in machine tools, metal cutting production with harsh fluid, mechanical or continuous flex requirements.

Conductors: 3x0,34 4x0,34 or 5x0,34mm²

(Black, Brown, Blue, White, Grey)

Jacket Material: Black PUR, halogen free, flame retardant

Voltage Rating: 300V, Max 4 Amps

Operating Temperature: -30 to +80°C

Bending Cycles: 2 Mio with 10 x D (60°C)

Diameter 3 pole 4,3 $^{\pm 0,2}$ mm
Diameter 4 pole 4,7 $^{\pm 0,2}$ mm
Diameter 5 pole 5,0 $^{\pm 0,2}$ mm

Approvals: UL, CSA

* Parts in bold belong to the BradExpress Program (see page 3)

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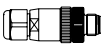
# Brad® Micro-Change® M12 Auxiliary Power Infrastructure Components

## Ordering Information

### Brad® Micro-Change® M12 Auxiliary Power Double-Ended 5 Pole Cordsets

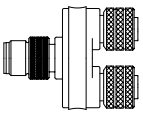
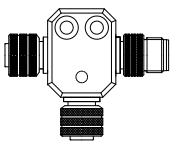
| E03 PVC Cable | | | | |
|---|---|---|---|---|
| | Female to Male Straight | | Female to Male 90° | |
| Length | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 1m | 885030E03M010 | 120007-0906 | 885033E03M010 | 120066-5402 |
| 2m | 885030E03M020 | 120007-0970 | 885033E03M020 | 120066-8675 |
| 3m | 885030E03M030 | 120007-0586 | 885033E03M030 | 120066-8676 |
| 5m | 885030E03M050 | 120007-0969 | 885033E03M050 | 120066-8677 |
| 10m | 885030E03M100 | 120066-8347 | 885033E03M100 | 120066-8678 |
| 15m | 885030E03M150 | 120066-8674 | — | — |
| 20m | 885030E03M200 | 120066-8487 | — | — |
| H09 PUR Cable | | | | |
| 1m | 885030H09M010 | 120066-8497 | 885033H09M010 | 120066-8499 |
| 2m | 885030H09M020 | 120066-8500 | 885033H09M020 | 120066-8679 |
| 3m | 885030H09M030 | 120066-8510 | 885033H09M030 | 120066-8680 |
| 5m | 885030H09M050 | 120066-8501 | 885033H09M050 | 120066-8681 |
| 10m | 885030H09M100 | 120066-8511 | 885033H09M100 | 120066-8682 |
| 15m | 885030H09M150 | 120066-8683 | — | — |
| 20m | 885030H09M200 | 120066-8684 | — | — |

### Brad® Micro-Change® M12 5 Pole Field Attachable



| | Male | | Female | |
|---|---|---|---|---|
| Type | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| PG9 | 8A5006-31 | 120071-0045 | 8A5000-31 | 120071-0041 |
| PG11 | 8A5006-32 | 120071-0047 | 8A5000-32 | 120071-0043 |

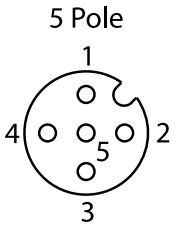
### Brad® Micro-Change® M12 5 Pole Accessories

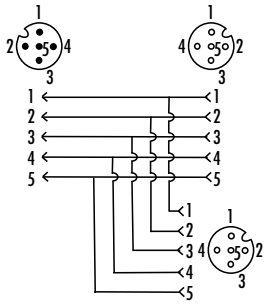
| 5 Poles M12 Y-Splitter | |
|---|---|
| Engineering No. | Standard Order No. |
| 0812-05EMF-00001 | 120068-0137 |

| 5 Poles M12 Tee | |
|---|---|
| Engineering No. | Standard Order No. |
| 0812-051FJ-00000 | 120068-8009 |

**5 Pole M12 A-Code Auxiliary Power Connector on the IO modules. Female Pinout**
(Conn. front view):




1. Brown – Module Power V-
2. White – Output Power V-
3. Blue – Ground
4. Black – Ground
5. Grey – Protective Earth



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**IP67 rated passive IO module for harsh environments are designed to concentrate the sensor/actuator signals into one unique home run cable for a better mechanical infrastructure wiring on the machine.**

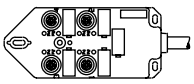
# Brad® Sensor/Actuator Distribution Boxes

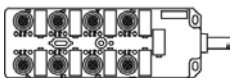
## Specifications

IP67 Molded PBT Housing, color Black
Single or Dual Input/Output signal per port
Indicating LED for Power and sensor trigger
PNP Version (available also in NPN version)
Electrical: 10-30V DC max. & 12.0A max. (4.0A max. per port)
Approvals: UL, CSA, IP67, NEMA 6

## Ordering Information

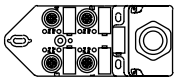
### Brad® M12 Distribution Boxes with PUR Home Run Cable

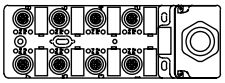




| | | 4 Ports | | 8 Ports | |
|---|---|---|---|---|---|
| **IO Type** | **Length** | **Engineering No.** | **Standard Order No.** | **Engineering No.** | **Standard Order No.** |
| Single IO | 5m | **BTY400P-FBP-05*** | **120114-8011*** | **BTY800P-FBP-05*** | **120114-8022*** |
| | 10m | BTY400P-FBP-10 | 120114-8012 | BTY800P-FBP-10 | 120114-8023 |
| Dual IO | 5m | **BTY405P-FBP-05*** | **120114-0039*** | **BTY805P-FBP-05*** | **120114-0089*** |
| | 10m | BTY405P-FBP-10 | 120114-0040 | **BTY805P-FBP-10*** | **120114-0090*** |

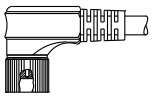
### Brad® M12 Distribution Boxes with Field Attachable Terminals

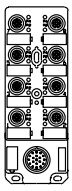




| | 4 Ports | | 8 Ports | |
|---|---|---|---|---|
| **IO Type** | **Engineering No.** | **Standard Order No.** | **Engineering No.** | **Standard Order No.** |
| Dual IO | **BTY403P-FBA*** | **120114-0029*** | **BTY803P-FBA*** | **120114-0082*** |

### Brad® M12 Distribution Boxes with M23 Connector and Home Run Cable

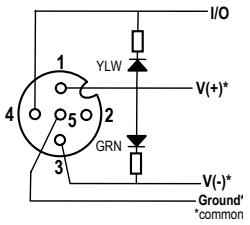




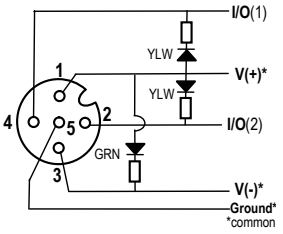
| | 8 Ports | |
|---|---|---|
| **IO Type** | **Engineering No.** | **Standard Order No.** |
| Single IO | **BTY801P-FBC*** | **120114-0066*** |
| Dual IO | **BTY803P-FBC*** | **120114-0084*** |

| | Single IO Home Run Cable (12p/11 wires) | | Dual IO Home Run Cable (19p/19 wires) | |
|---|---|---|---|---|
| **Length** | **Engineering No.** | **Standard Order No.** | **Engineering No.** | **Standard Order No.** |
| 10m | **K02101P80M100*** | **120094-0125*** | **K03001B20M100*** | **120094-5009*** |
| 15m | K02101P80M150 | 120094-8038 | **K03001B20M150*** | **120094-5031*** |

### Micro-Change® M12 Single IO Connector Wiring




### Micro-Change® M12 Dual IO Connector Wiring

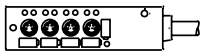
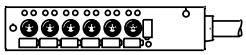



∗ Parts in bold belong to the BradExpress Program (see page 3)

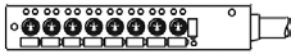
# Brad® Sensor/Actuator Distribution Boxes

## Ordering Information

### Brad® M8 Distribution Boxes with Side Mount PUR Home Run Cable

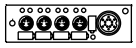
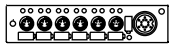
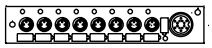
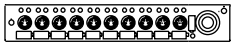



| | | 4 Ports | | 6 Ports | |
|---|---|---|---|---|---|
| IO Type | Length | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| Single IO | 5m | **BEY401P-FBP-05*** | **120113-0006*** | **BEY601P-FBP-05*** | **120113-0011*** |
| | 10m | BEY401P-FBP-10 | 120113-0007 | BEY601P-FBP-10 | 120054-0026 |

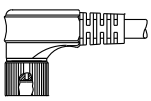


| | | 8 Ports | | 10 Ports | |
|---|---|---|---|---|---|
| IO Type | Length | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| Single IO | 5m | **BEY801P-FBP-05*** | **120113-0014*** | **BEYA01P-FBP-05*** | **120113-0002*** |
| | 10m | **BEY801P-FBP-10*** | **120113-0015*** | BEYA01P-FBC-10 | 120054-0091 |

### Brad® M8 Distribution Boxes with M16 Connector and Home Run Cable

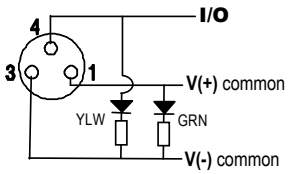





| | Single IO Distribution Box with M16 connector | |
|---|---|---|
| Ports | Engineering No. | Standard Order No. |
| 4 | **BNY401P-FBC*** | **120113-0023*** |
| 6 | **BNY601P-FBC*** | **120113-0026*** |
| 8 | **BNY801P-FBC*** | **120113-0029*** |
| 10 | **BNYA01P-FBC*** | **120113-0020*** |



| | M16 Single IO Home Run Cable 10 Meter | |
|---|---|---|
| Block | Engineering No. | Standard Order No. |
| 4 Ports | **L04301M78M100*** | **130023-0063*** |
| 6 Ports | **L04201M78M100*** | **130023-0059*** |
| 8 Ports | **L04101M78M100*** | **130023-0055*** |
| 10 Ports | **L04A01M78M100*** | **130023-0068*** |

**Nano-Change® M8 Single IO Connector Wiring**




**Note:**
Further technical information, datasheet or drawing can be downloaded from the Molex® website using the ordering part number.

∗ Parts in bold belong to the BradExpress Program (see page 3)

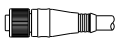
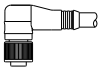
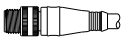
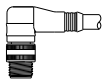
molex®

**Brad® Micro-Change® M12 connectivity is a ready-to-use solution based on the M12 A Coded standard with IP67/68 rating to wire a wide range of sensors and actuators from proximity switches to rotary encoders in harsh environments.**

# Brad® Micro-Change® M12 Sensor/Actuator Connectivity

## Ordering Information

### Brad® Micro-Change® M12 Single-Ended Cordsets

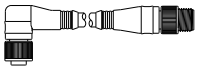





| E03 PVC Cable | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Female Straight | | Female 90° | | Male Straight | | Male 90° | |
| Poles | Length | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 3 | 1m | 803000E03M010 | 120065-8562 | 803001E03M010 | 120006-0175 | 803006E03M010 | 120065-8565 | 803007E03M010 | 120065-8567 |
| | 2m | 803000E03M020 | 120006-0001 | 803001E03M020 | 120006-0007 | 803006E03M020 | 120006-0240 | 803007E03M020 | 120006-0273 |
| | 5m | 803000E03M050 | 120006-0002 | **803001E03M050*** | **120006-0008*** | 803006E03M050 | 120006-0241 | 803007E03M050 | 120006-0275 |
| | 10m | 803000E03M100 | 120006-0003 | 803001E03M100 | 120006-0009 | 803006E03M100 | 120006-0242 | 803007E03M100 | 120065-8506 |
| 4 | 1m | 804000E03M010 | 120006-0426 | 804001E03M010 | 120006-0479 | 804006E03M010 | 120006-0559 | 804007E03M010 | 120006-0582 |
| | 2m | **804000E03M020*** | **120006-0014*** | **804001E03M020*** | **120006-0021*** | 804006E03M020 | 120006-0560 | 804007E03M020 | 120006-1975 |
| | 5m | **804000E03M050*** | **120006-0015*** | **804001E03M050*** | **120006-0022*** | 804006E03M050 | 120006-0562 | 804007E03M050 | 120006-0584 |
| | 10m | **804000E03M100*** | **120006-0016*** | **804001E03M100*** | **120006-0023*** | 804006E03M100 | 120006-0563 | 804007E03M100 | 120006-2238 |
| 5 | 1m | 805000E03M010 | 120006-3314 | 805001E03M010 | 120065-8573 | 805006E03M010 | 120006-2799 | 805007E03M010 | 120065-9138 |
| | 2m | 805000E03M020 | 120006-0634 | 805001E03M020 | 120006-0652 | 805006E03M020 | 120006-0667 | 805007E03M020 | 120065-8096 |
| | 5m | **805000E03M050*** | **120065-1978*** | 805001E03M050 | 120006-0654 | 805006E03M050 | 120006-1345 | 805007E03M050 | 120006-2929 |
| | 10m | **805000E03M100*** | **120006-0638*** | 805001E03M100 | 120006-0657 | 805006E03M100 | 120006-2209 | 805007E03M100 | 120006-2498 |
| **H09 PUR Cable** | | | | | | | | | |
| 3 | 1m | 803000H09M010 | 120065-8636 | 803001H09M010 | 120065-8713 | 803006H09M010 | 120065-8653 | 803007H09M010 | 120065-8720 |
| | 2m | 803000H09M020 | 120065-8175 | 803001H09M020 | 120065-8715 | 803006H09M020 | 120065-8655 | 803007H09M020 | 120065-8722 |
| | 5m | 803000H09M050 | 120065-8176 | 803001H09M050 | 120065-8718 | 803006H09M050 | 120065-8248 | 803007H09M050 | 120065-8725 |
| | 10m | 803000H09M100 | 120065-8177 | 803001H09M100 | 120065-8719 | 803006H09M100 | 120065-8247 | 803007H09M100 | 120065-8726 |
| 4 | 1m | 804000H09M010 | 120065-8640 | 804001H09M010 | 120065-8668 | 804006H09M010 | 120065-8727 | 804007H09M010 | 120065-8734 |
| | 2m | 804000H09M020 | 120065-8178 | 804001H09M020 | 120065-8513 | 804006H09M020 | 120065-8729 | 804007H09M020 | 120065-8736 |
| | 5m | 804000H09M050 | 120065-8179 | 804001H09M050 | 120065-8193 | 804006H09M050 | 120065-8732 | 804007H09M050 | 120065-8739 |
| | 10m | 804000H09M100 | 120065-8190 | 804001H09M100 | 120065-8194 | 804006H09M100 | 120065-8733 | 804007H09M100 | 120065-8740 |
| 5 | 1m | 805000H09M010 | 120065-8632 | 805001H09M010 | 120065-8664 | 805006H09M010 | 120065-8741 | 805007H09M010 | 120065-8748 |
| | 2m | 805000H09M020 | 120065-8172 | 805001H09M020 | 120065-8296 | 805006H09M020 | 120065-8743 | 805007H09M020 | 120065-8750 |
| | 5m | 805000H09M050 | 120065-8173 | 805001H09M050 | 120065-8297 | 805006H09M050 | 120065-8746 | 805007H09M050 | 120065-8753 |
| | 10m | 805000H09M100 | 120065-8174 | 805001H09M100 | 120065-8298 | 805006H09M100 | 120065-8747 | 805007H09M100 | 120065-8754 |

∗ Parts in bold belong to the BradExpress Program (see page 3)

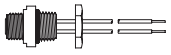
## Ordering Information

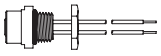
## Brad® Micro-Change® M12 Double-Ended Cordsets



| E03 PVC Cable | | | | | |
|---|---|---|---|---|---|
| | | Fem. To Male Straight | | Fem. 90° To Male Straight | |
| Poles | Length | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 4 | 0.6m | **884030E03M006*** | **120007-0472*** | 884031E03M006 | 120007-0508 |
| | 1m | 884030E03M010 | 120007-0473 | 884031E03M010 | 120007-0509 |
| | 2m | **884030E03M020*** | **120007-0474*** | 884031E03M020 | 120007-0511 |
| | 3m | 884030E03M030 | 120007-0475 | 884031E03M030 | 120007-0512 |
| | 5m | **884030E03M050*** | **120006-0049*** | 884031E03M050 | 120007-0904 |
| | 10m | 884030E03M100 | 120007-0476 | 884031E03M100 | 120007-1278 |
| 5 | 0.6m | 885030E03M006 | 120066-8338 | 885031E03M006 | 120066-8339 |
| | 1m | 885030E03M010 | 120007-0906 | 885031E03M010 | 120066-8189 |
| | 2m | 885030E03M020 | 120007-0970 | 885031E03M020 | 120066-8278 |
| | 3m | 885030E03M030 | 120007-0586 | 885031E03M030 | 120066-8340 |
| | 5m | 885030E03M050 | 120007-0969 | 885031E03M050 | 120066-8279 |
| | 10m | 885030E03M100 | 120066-8347 | 885031E03M100 | 120066-8348 |
| **H09 PUR Cable** | | | | | |
| 4 | 0.6m | 884030H09M006 | 120066-8378 | 884031H09M006 | 120066-8669 |
| | 1m | 884030H09M010 | 120066-8379 | 884031H09M010 | 120066-8484 |
| | 2m | 884030H09M020 | 120066-8234 | 884031H09M020 | 120066-8212 |
| | 3m | 884030H09M030 | 120066-8174 | 884031H09M030 | 120066-8215 |
| | 5m | 884030H09M050 | 120066-8244 | 884031H09M050 | 120066-8670 |
| | 10m | 884030H09M100 | 120066-8381 | 884031H09M100 | 120066-8671 |
| 5 | 0.6m | 885030H09M006 | 120066-8509 | 885031H09M006 | 120066-8512 |
| | 1m | 885030H09M010 | 120066-8497 | 885031H09M010 | 120066-8496 |
| | 2m | 885030H09M020 | 120066-8500 | 885031H09M020 | 120066-8513 |
| | 3m | 885030H09M030 | 120066-8510 | 885031H09M030 | 120066-8514 |
| | 5m | 885030H09M050 | 120066-8501 | 885031H09M050 | 120066-8515 |
| | 10m | 885030H09M100 | 120066-8511 | 885031H09M100 | 120066-8516 |

## Brad® Micro-Change® M12 Front Mount Receptacles





| Wires with PVC Jacket | | | | | |
|---|---|---|---|---|---|
| | | Male | | Female | |
| Poles | Mount Thread | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 4 | PG9 | **8R4J36E03C3003*** | **120070-0156*** | **8R4J30E03C3003*** | **120070-0395*** |
| | M14x1 | 8R4E36E03C3003 | 120011-0017 | 8R4E30E03C3003 | 120011-0013 |
| 5 | PG9 | **8R5J36E03C3003*** | **120070-0231*** | **8R5J30E03C3003*** | **120070-0229*** |
| | M14x1 | 8R5E36E03C3003 | 120011-0035 | **8R5E30E03C3003*** | **120011-0033*** |

### E03 PVC M12 Cable Specification

For use in packaging machines and production lines, in static or less demanding environments.

Conductors: 3x0,34 4x0,34 or 5x0,34mm²

(Black, Brown, Blue, White, Grey)

Jacket Material: Black PVC

Voltage Rating: 300V, Max 4 Amps

Operating Temperature: -30 to+80°C

Diameter 3 pole 4,9 $^{-0,1+0,3}$ mm
Diameter 4 pole 5,4 $^{-0,1+0,3}$ mm
Diameter 5 pole 5,8 $^{-0,1+0,3}$ mm

Approvals: UL, CSA

### H09 PUR M12 Cable Specification

For use in machine tools, metal cutting production with harsh fluid, mechanical or continuous flex requirements.

Conductors: 3x0,34 4x0,34 or 5x0,34mm²

(Black, Brown, Blue, White, Grey)

Jacket Material: Black PUR, halogen free, flame retardant

Voltage Rating: 300V, Max 4 Amps

Operating Temperature: -30 to +80°C

Bending Cycles: 2 Mio with 10 x D (60°C)

Diameter 3 pole 4,3 $^{\pm 0,2}$ mm
Diameter 4 pole 4,7 $^{\pm 0,2}$ mm
Diameter 5 pole 5,0 $^{\pm 0,2}$ mm

Approvals: UL, CSA

* Parts in bold belong to the BradExpress Program (see page 3)

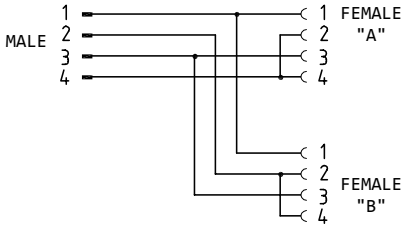
## Ordering Information

## Brad® Micro-Change® M12 Cordsets to M8 Sensors

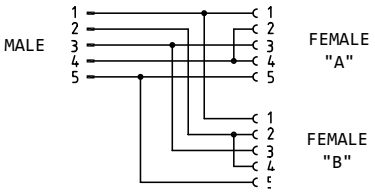
| E03 PVC Cable | | | | | |
|---|---|---|---|---|---|
| | | M12 Male Straight to M8 Female Straight | | M12 Male Straight to M8 Female 90° | |
| Poles | Length | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 3 | .6m | 483030E02M006 | 120087-8038 | 483031E02M006 | 120087-8421 |
| | 1m | 483030E02M010 | 120087-8406 | 483031E02M010 | 120087-8422 |
| | 2m | 483030E02M020 | 120087-8039 | 483031E02M020 | 120087-8167 |
| | 5m | 483030E02M050 | 120087-8409 | 483031E02M050 | 120087-8425 |
| 4 | .6m | 484030E02M006 | 120087-8461 | 484031E02M006 | 120087-8477 |
| | 1m | 484030E02M010 | 120087-8073 | 484031E02M010 | 120087-8478 |
| | 2m | 484030E02M020 | 120087-8463 | 484031E02M020 | 120087-8480 |
| | 5m | 484030E02M050 | 120087-8468 | 484031E02M050 | 120087-8483 |
| **H09 PUR Cable** | | | | | |
| 3 | .6m | 483030H08M006 | 120086-8221 | 483031H08M006 | 120087-8560 |
| | 1m | 483030H08M010 | 120087-8510 | 483031H08M010 | 120087-8513 |
| | 2m | 483030H08M020 | 120087-8255 | 483031H08M020 | 120087-8561 |
| | 5m | 483030H08M050 | 120087-8511 | 483031H08M050 | 120087-8514 |
| 4 | .6m | 484030H08M006 | 120087-8565 | 484031H08M006 | 120087-8562 |
| | 1m | 484030H08M010 | 120087-8516 | 484031H08M010 | 120087-8563 |
| | 2m | 484030H08M020 | 120087-8566 | 484031H08M020 | 120087-8564 |
| | 5m | 484030H08M050 | 120087-8567 | 484031H08M050 | 120087-8517 |

### Y-Splitter Wiring Schematic

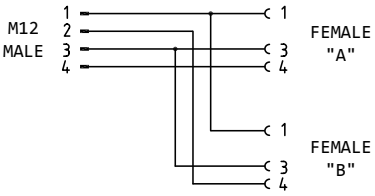
M12 to M12 4 Pole



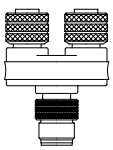

M12 to M12 5 Pole



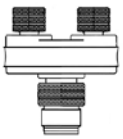

M12 to M8 4 Pole




## Brad® Micro-Change® M12 Y-Splitters & Adapters



| Y-Splitter | | |
|---|---|---|
| | 1x M12 Male to 2x M12 Female | |
| Poles | Engineering No. | Standard Order No. |
| 4 | 081204EMF00000 | 120068-0294 |
| 5 | 081205EMF00000 | 120068-0139 |

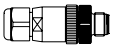


| Y-Splitter | | |
|---|---|---|
| | 1x M12 Male to 2x M8 Female | |
| Poles | Engineering No. | Standard Order No. |
| 4 | 080804EMF00000 | 120089-0031 |

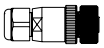
| Adapter Connector | | |
|---|---|---|
| | 1xM12 Male to 1xM8 Female | |
| Poles | Engineering No. | Standard Order No. |
| 3 | 483030 | 120033-0002 |
| 4 | 484030 | 120033-0001 |

## Ordering Information

### Brad® Micro-Change® M12 Field Attachable Connectors

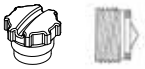


| | | Male Straight | | Male 90° | |
|---|---|---|---|---|---|
| Poles | Max. Wire Size | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 4 | 3.3-6.6 | 8A4006-31 | 120071-0038 | 8A4007-31 | 120071-0040 |
| | 4.1-8.1 | 8A4006-32 | 120071-0039 | 8A4007-32 | 120071-5011 |
| 5 | 3.3-6.6 | 8A5006-31 | 120071-0045 | 8A5007-31 | 120071-0049 |
| | 4.1-8.1 | 8A5006-32 | 120071-0047 | 8A5007-32 | 120071-0071 |



| | | Female Straight | | Female 90° | |
|---|---|---|---|---|---|
| Poles | Max. Wire Size | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 4 | 3.3-6.6 | 8A4000-31 | 120071-0035 | 8A4001-31 | 120071-0037 |
| | 4.1-8.1 | 8A4000-32 | 120071-0036 | 8A4001-32 | 120071-5010 |
| 5 | 3.3-6.6 | 8A5000-31 | 120071-0041 | 8A5001-31 | 120071-0044 |
| | 4.1-8.1 | 8A5000-32 | 120071-0043 | 8A5001-32 | 120071-0070 |

### Brad® Micro-Change® M12 Closure Caps



Plastic Closure Cap

| To Cover Male | | To Cover Female | |
|---|---|---|---|
| Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| — | 120308-0680 | — | 120358-0030 |

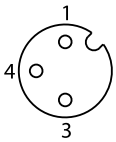
Rubber Closure Cap with Leash

| To Cover Male | | To Cover Female | |
|---|---|---|---|
| Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| — | 120076-5046 | — | **120076-5047*** |

* Parts in bold belong to the BradExpress Program (see page 3)

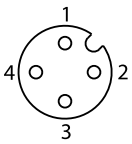
### Micro-Change® M12 Connector Pinout

3 Pole



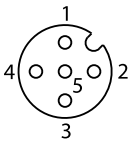

1 - Brown 4 - Black
3 - Blue

4 Pole




1 - Brown 3 - Blue
2 - White 4 - Black

5 Pole




1 - Brown 4 - Black
2 - White 5 - Gray
3 - Blue

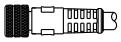
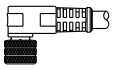
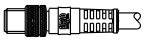
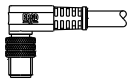
molex®

**Brad® Nano-Change® M8 connectivity provides a rugged and space-saving solution to wire a wide range of sensors and actuators from proximity switches to rotary encoders in harsh environments.**

# Brad® Nano-Change® M8 Sensor/Actuator Connectivity

## Ordering Information

### Brad® Nano-Change® M8 Single-Ended Cordsets

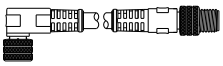





| Poles | Length | Female Straight | | Female 90° | | Male Straight | | Male 90° | |
|---|---|---|---|---|---|---|---|---|---|
| | | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| **E02 PVC Cable** | | | | | | | | | |
| 3 | 1m | 403000E02M010 | 120027-0400 | 403001E02M010 | 120086-8293 | 403006E02M010 | 120027-0364 | 403007E02M010 | 120086-8323 |
| | 2m | **403000E02M020*** | **120027-0066*** | **403001E02M020*** | **120027-0090*** | **403006E02M020*** | **120086-8228*** | **403007E02M020*** | **120027-0106*** |
| | 5m | **403000E02M050*** | **120027-0068*** | **403001E02M050*** | **120027-0092*** | **403006E02M050*** | **120027-0105*** | **403007E02M050*** | **120086-8324*** |
| | 10m | **403000E02M100*** | **120027-0070*** | **403001E02M100*** | **120027-0093*** | **403006E02M100*** | **120086-8307*** | **403007E02M100*** | **120086-8325*** |
| 4 | 1m | 404000E02M010 | 120027-0549 | 404001E02M010 | 120086-8356 | 404006E02M010 | 120086-8161 | 404007E02M010 | 120086-8489 |
| | 2m | **404000E02M020*** | **120027-0127*** | **404001E02M020*** | **120027-0152*** | **404006E02M020*** | **120086-8368*** | **404007E02M020*** | **120027-0483*** |
| | 5m | **404000E02M050*** | **120027-0129*** | **404001E02M050*** | **120027-0153*** | **404006E02M050*** | **120027-0376*** | **404007E02M050*** | **120086-8378*** |
| | 10m | **404000E02M100*** | **120027-0131*** | **404001E02M100*** | **120027-0154*** | **404006E02M100*** | **120086-8369*** | **404007E02M100*** | **120086-8379*** |
| **H08 PUR Cable** | | | | | | | | | |
| 3 | 1m | 403000H08M010 | 120027-1409 | 403001H08M010 | 120086-8497 | 403006H08M010 | 120086-8496 | 403007H08M010 | 120086-8490 |
| | 2m | 403000H08M020 | 120086-8045 | 403001H08M020 | 120086-8052 | 403006H08M020 | 120086-8390 | 403007H08M020 | 120086-8393 |
| | 5m | 403000H08M050 | 120086-8101 | 403001H08M050 | 120086-8054 | 403006H08M050 | 120086-8078 | 403007H08M050 | 120086-8491 |
| | 10m | 403000H08M100 | 120086-8115 | 403001H08M100 | 120086-8004 | 403006H08M100 | 120086-8433 | 403007H08M100 | 120086-8492 |
| 4 | 1m | 404000H08M010 | 120086-8487 | 404001H08M010 | 120086-8055 | 404006H08M010 | 120086-8409 | 404007H08M010 | 120086-8493 |
| | 2m | 404000H08M020 | 120086-8207 | 404001H08M020 | 120027-1328 | 404006H08M020 | 120086-8392 | 404007H08M020 | 120086-8394 |
| | 5m | 404000H08M050 | 120086-8053 | 404001H08M050 | 120086-8211 | 404006H08M050 | 120086-8227 | 404007H08M050 | 120086-8494 |
| | 10m | 404000H08M100 | 120086-8117 | 404001H08M100 | 120086-8077 | 404006H08M100 | 120086-8488 | 404007H08M100 | 120086-8495 |

∗ Parts in bold belong to the BradExpress Program (see page 3)

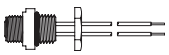
## Ordering Information

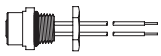
## Brad® Nano-Change® M8 Double-Ended Cordsets



| E02 PVC Cable | | | | | |
|---|---|---|---|---|---|
| | | Female to Male Straight | | Fem. 90° to Male Straight | |
| Poles | Length | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 3 | .6m | **443030E02M006*** | **120087-5035*** | **443031E02M006*** | **120087-5016*** |
| | 1m | **443030E02M010*** | **120087-8258*** | **443031E02M010*** | **120028-0016*** |
| | 2m | **443030E02M020*** | **120028-0321*** | **443031E02M020*** | **120087-8305*** |
| | 5m | **443030E02M050*** | **120028-0462*** | **443031E02M050*** | **120087-8308*** |
| 4 | .6m | **444030E02M006*** | **120087-8348*** | **444031E02M006*** | **120087-8364*** |
| | 1m | **444030E02M010*** | **120087-8349*** | **444031E02M010*** | **120087-8365*** |
| | 2m | **444030E02M020*** | **120087-8350*** | **444031E02M020*** | **120087-8366*** |
| | 5m | **444030E02M050*** | **120087-8354*** | **444031E02M050*** | **120087-8368*** |
| **H08 PUR Cable** | | | | | |
| 4 | .6m | 443030H08M006 | 120087-8558 | 443031H08M006 | 120087-8557 |
| | 1m | 443030H08M010 | 120087-8500 | 443031H08M010 | 120087-8499 |
| | 2m | 443030H08M020 | 120087-8149 | 443031H08M020 | 120087-8128 |
| | 5m | 443030H08M050 | 120087-8127 | 443031H08M050 | 120087-8130 |
| 5 | .6m | 444030H08M006 | 120087-8559 | 444031H08M006 | 120087-8554 |
| | 1m | 444030H08M010 | 120087-8495 | 444031H08M010 | 120087-8196 |
| | 2m | 444030H08M020 | 120087-8356 | 444031H08M020 | 120087-8555 |
| | 5m | 444030H08M050 | 120087-8509 | 444031H08M050 | 120087-8556 |

## Brad® Nano-Change® M8 Front Mount Receptacles





| Wires with PVC Jacket | | | | | |
|---|---|---|---|---|---|
| | | Male | | Female | |
| Poles | Mount Thread | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 3 | M8x0.5 | **4R3F06E02C3003*** | **120031-0004*** | **4R3F30E02C3003*** | **120031-0015*** |
| | M12x1 | **4R3F46E02C200*** | **120090-5073*** | **4R3L40E02C200*** | **120090-5104*** |
| 4 | M8x0.5 | **4R4F06E02C3003*** | **120031-0006*** | **4R4F30E02C3003*** | **120031-0049*** |
| | M12x1 | **4R4F46E02C200*** | **120090-5078*** | 4R4L40E02C200 | 120090-8037 |

∗ Parts in bold belong to the BradExpress Program (see page 3)

### E02 PVC M8 Cable Specification

For use in packaging machines and production lines in static or less demanding environments.

Conductors: 3x0,25 or 4x0,25mm²

(Black, Brown, Blue, White)

Jacket Material: Black PVC

Voltage Rating: 300V, Max 4 Amps

Operating Temperature: -30 to +80°C

Diameter 3 pole 4,5 $^{-0,1+0,3}$ mm
Diameter 4 pole 5,8 $^{-0,1+0,3}$ mm

Approvals: UL, CSA

### H08 PUR M8 Cable Specification

For use in machine tools, metal cutting production with harsh fluid, mechanical or continuous flex requirements.

Conductors: 3x0,25 or 4x0,25mm²

(Black, Brown, Blue, White)

Jacket Material: Black PUR, halogen free, flame retardant

Voltage Rating: 300V, Max 4 Amps

Operating Temperature: -30 to +80°C

Bending Cycles: 2 Mio with 10 x D (60°C)

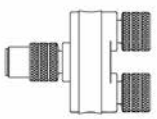
Diameter 3 pole 4,4 $^{\pm 0,2}$ mm
Diameter 4 pole 4,7 $^{\pm 0,2}$ mm

Approvals: UL, CSA

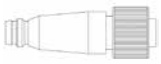
## Ordering Information

### Brad® Nano-Change® M8 Y-Splitters & Adapters

| Y-Splitter | | |
|---|---|---|
| | 1x M8 Male to 2x M8 Female | |
| **Poles** | **Engineering No.** | **Standard Order No.** |
| 4 | 080804LMF00000 | 120089-0033 |

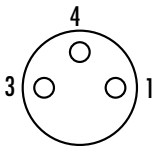


| Adapter Connector | | |
|---|---|---|
| | 1x M8 Male to 1x M12 Female | |
| **Poles** | **Engineering No.** | **Standard Order No.** |
| 3 | 853030 | 120017-0004 |
| 4 | 854030 | 120017-0003 |

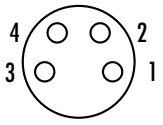


Note:
M8 male connector thread is fixed. To connect only with M8 female connectors.

**Nano-Change® M8 Connector Pinout**
(front view)



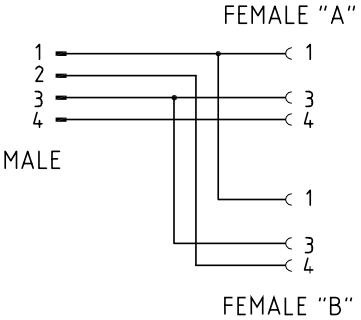

1 - Brown
3 - Blue
4 - Black




1 - Brown
2 - White
3 - Blue
4 - Black

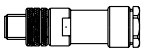
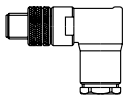
**Y-Splitter Wiring Schematic**

M8 to M8 4 Pole

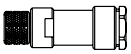
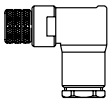


## Ordering Information

### Brad® Nano-Change® M8 Field Attachable Connectors

| | | Male Straight | | Male 90° | |
|---|---|---|---|---|---|
| Poles | Max Wire Size | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 3 | 3.5-5mm | N03MA03124 | 120091-0004 | N03MA04124 | 120091-0006 |
| 4 | 3.5-5mm | N04MA03124 | 120091-0010 | N04MA04124 | 120091-0012 |

| | | Female Straight | | Female 90° | |
|---|---|---|---|---|---|
| Poles | Max Wire Size | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| 3 | 3.5-5mm | N03FA03124 | 120091-0001 | N03FA04124 | 120091-0003 |
| 4 | 3.5-5mm | N04FA03124 | 120091-0007 | N04FA04124 | 120091-0009 |

### Brad® Nano-Change® M8 Closure Caps

Plastic Closure Cap

| To Cover Female | |
|---|---|
| Engineering No. | Standard Order No. |
| — | 120308-0677 |

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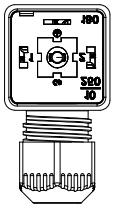
# Brad® mPm® DIN Valve Connectors

**The mPm® DIN valve connectors conform to the industry standard of electrical connectors EN 175301-803, which are commonly used with solenoid valves. The new generation of Molex® DIN connectors provides unsurpassed sealing performance, easier assembly and mounting and lower applied costs.**

## Ordering Information

### Brad® mPm® Field Attachable DIN Valve Connectors

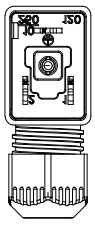


| Form A External Thread | | |
|---|---|---|
| **Description** | **Engineering No.** | **Standard Order No.** |
| Non-Electronic | **C28200N2RSN*** | **121201-0034*** |
| With Electronic | S28200TC422RSN | 121207-0358 |

| Form B External Thread | | |
|---|---|---|
| **Description** | **Engineering No.** | **Standard Order No.** |
| Non-Electronic | **C22200N2RSN*** | **121202-0012*** |
| With Electronic | S22200TC422RSN | 121208-0230 |

| Form C External Thread | | |
|---|---|---|
| **Description** | **Engineering No.** | **Standard Order No.** |
| Non-Electronic | **C92200N2TSN*** | **121203-0009*** |
| With Electronic | S92200TC422TSN | 121209-0197 |

| Form Micro External Thread | | |
|---|---|---|
| **Description** | **Engineering No.** | **Standard Order No.** |
| Non-Electronic | **C25200N2TSN*** | **121204-0010*** |
| With Electronic | S25200TC422TSN | 121210-0332 |



| Form Industrial External Thread | | |
|---|---|---|
| **Description** | **Engineering No.** | **Standard Order No.** |
| Non-Electronic | **C29200N2TSN*** | **121205-0012*** |
| With Electronic | S29200TC422TSN | 121211-0332 |

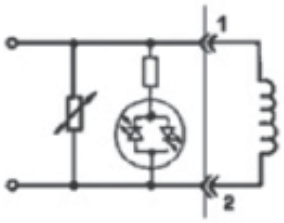
∗ Parts in bold belong to the BradExpress Program (see page 3)

### Circuit C4 Schematics

Bipolar yellow LED and VDR to protect supply and switch. (The energy in the coil is limited by the VDR).

Voltage: AC-DC 12 to 230V.

For type 192 only 12-24 and 115V




**Note:**
The mPm® DIN valve connectors are available in various version, Pole count, housing and electronics. For further information consult our website or automation catalog or your local sales support.

Further technical information, datasheet or drawing can be downloaded from the Molex® website using the ordering part number.

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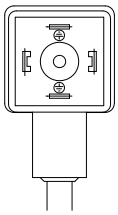
# Brad® mPm® DIN Valve Connectors

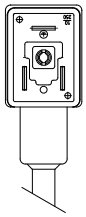
**The mPm® connectors with molded-in cable are suitable for use with most types of solenoid. They offer a fast and efficient method of connection resulting in greatly reduced installation time and costs.**

## Ordering Information

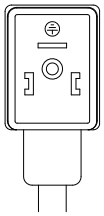
### Brad® mPm® DIN Valve Connectors Over Molded to M12 Male Connector



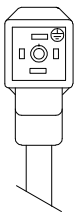
| DIN Valve Connector, FORM A, C4 Circuit, Ground Pos H6/H12 | | | | |
|---|---|---|---|---|
| | Male Straight | | Male 90° | |
| Length | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| .6m | E850B0P12M006 | 121036-0192 | E850B2P12M006 | 121036-0208 |
| 1m | E850B0P12M010 | 121036-0193 | E850B2P12M010 | 121036-0209 |
| 1.5m | E850B0P12M015 | 121036-0194 | E850B2P12M015 | 121036-0821 |
| 3m | E850B0P12M030 | 121036-0356 | E850B2P12M030 | 121036-0211 |



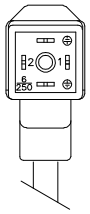
| DIN Valve Connector, FORM Industrial, C4 Circuit, Ground Pos H6 | | | | |
|---|---|---|---|---|
| | Male Straight | | Male 90° | |
| Length | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| .6m | F850B0P12M006 | 121036-0352 | F850B2P12M006 | 121036-0505 |
| 1m | F850B0P12M010 | 121036-0255 | F850B2P12M010 | 121036-0506 |
| 1.5m | F850B0P12M015 | 121036-0822 | F850B2P12M015 | 121036-0823 |
| 3m | F850B0P12M030 | 121036-0257 | F850B2P12M030 | 121036-0824 |



| DIN Valve Connector, FORM B, C4 Circuit, Ground Pos H6 | | | | |
|---|---|---|---|---|
| | Male Straight | | Male 90° | |
| Length | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| .6m | D850B0P12M006 | 121036-0056 | D850B2P12M006 | 121036-0828 |
| 1m | D850B0P12M010 | 121036-0825 | D850B2P12M010 | 121036-0829 |
| 1.5m | D850B0P12M015 | 121036-0826 | D850B2P12M015 | 121036-0830 |
| 3m | D850B0P12M030 | 121036-0827 | D850B2P12M030 | 121036-0831 |



| DIN Valve Connector, FORM C, C4 Circuit, Ground Pos H6/H12 | | | | |
|---|---|---|---|---|
| | Male Straight | | Male 90° | |
| Length | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| .6m | H850B0P12M006 | 121036-0295 | H850B2P12M006 | 121036-0832 |
| 1m | H850B0P12M010 | 121036-0296 | H850B2P12M010 | 121036-0305 |
| 1.5m | H850B0P12M015 | 121036-0471 | H850B2P12M015 | 121036-0833 |
| 3m | H850B0P12M030 | 121036-0440 | H850B2P12M030 | 121036-0834 |



| DIN Valve Connector, FORM Micro, C4 Circuit, Ground Pos H6/H12 | | | | |
|---|---|---|---|---|
| | Male Straight | | Male 90° | |
| Length | Engineering No. | Standard Order No. | Engineering No. | Standard Order No. |
| .6m | G850B0P12M006 | 121036-0406 | G850B2P12M006 | 121036-0836 |
| 1m | G850B0P12M010 | 121036-0277 | G850B2P12M010 | 121036-0621 |
| 1.5m | G850B0P12M015 | 121036-0835 | G850B2P12M015 | 121036-0837 |
| 3m | G850B0P12M030 | 121036-0481 | G850B2P12M030 | 121035-0270 |

### DIN PUR/PVC Cable Specification

Conductors: 3x0,5mm² PVC
(Brown, Blue, Green/Yellow)
Jacket Material: Black PUR
Voltage Rating: 300V
Operating Temperature:
-5 to +90°C (flexing)
-30 to +90°C (static)
Diameter: 5,5 $^{\pm 0,3}$ mm

**Note:**
The mPm® DIN valve over molded cordsets are available in various versions, Pole count, housing, cable, lengths and electronics. For further information consult our website or automation catalog or your local sales support.

Further technical information, datasheet or drawing can be downloaded from the Molex® website using the ordering part number.

**Get more insights at: molex.com/industry/industrial.html**

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